PRINCIPLES OF ECONOMICS, VOL. I

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Author: ALFRED MARSHALL

Language: English

Subject: Fiction, Literature

Digital Publisher: World Public Library Association

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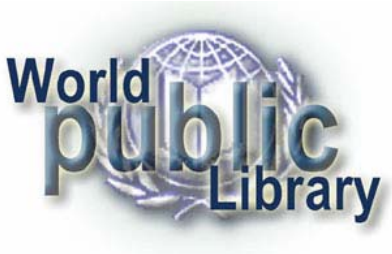

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James George Frazer
Trinity College, Cambridge.
19th. July, 1890

PRINCIPLES

OF

ECONOMICS.

P1407

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BY

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VOL. I.

Natura non facit saltum.

London:
MACMILLAN AND CO.
AND NEW YORK.
1890

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330
M367
V.1

A:2585

Cambridge:
PRINTED BY C. J. CLAY, M.A. AND SONS,
AT THE UNIVERSITY PRESS.

PREFACE.

ECONOMIC conditions are constantly changing, and each generation looks at its own problems in its own way. In England, as well as on the Continent and in America, Economic studies are being more vigorously pursued now than ever before; but all this activity has only shown the more clearly that Economic science is, and must be, one of slow and continuous growth. Some of the best work of the present generation has indeed appeared at first sight to be antagonistic to that of earlier writers; but when it has had time to settle down into its proper place, and its rough edges have been worn away, it has been found to involve no real breach of continuity in the development of the science. The new doctrines have supplemented the older, have extended, developed, and sometimes corrected them, and often have given them a different tone by a new distribution of emphasis; but very seldom have subverted them.

The present treatise is an attempt to present a modern version of old doctrines with the aid of the new work, and with reference to the new problems, of our own age. Its general scope and purpose are indicated in Book I.; at the end of which a short account is given of what are taken to be the chief subjects of economic inquiry, and the chief practical issues on which that inquiry has a bearing. In accordance with English traditions, it is held that the function of the science is to collect, arrange and analyse

economic facts, and to apply the knowledge, gained by observation and experience, in determining what are likely to be the immediate and ultimate effects of various groups of causes; and it is held that the Laws of Economics are statements of tendencies expressed in the indicative mood, and not ethical precepts in the imperative. Economic laws and reasonings in fact are merely a part of the material which Conscience and Common-sense have to turn to account in solving practical problems, and in laying down rules which may be a guide in life.

But ethical forces are among those of which the economist has to take account. Attempts have indeed been made to construct an abstract science with regard to the actions of an "economic man," who is under no ethical influences and who pursues pecuniary gain warily and energetically, but mechanically and selfishly. But they have not been successful, nor even thoroughly carried out. For they have never really treated the economic man as perfectly selfish: no one could be relied on better to endure toil and sacrifice with the unselfish desire to make provision for his family; and his normal motives have always been tacitly assumed to include the family affections. But if they include these, why should they not include all other altruistic motives the action of which is so far uniform in any class at any time and place, that it can be reduced to general rule? There seems to be no reason; and in the present book normal action is taken to be that which may be expected, under certain conditions, from the members of an industrial group; and no attempt is made to exclude the influence of any motives, the action of which is regular, merely because they are altruistic. If the book has any special character of its own, that may perhaps be said to lie in the prominence which it gives to this and other applications of the Principle of Continuity.

This Principle is applied not only to the ethical quality of the motives by which a man may be influenced in choosing his ends, but also to the sagacity, the energy and the enterprise with which he pursues those ends. Thus stress is laid on the fact that there is a continuous gradation from the actions of "city men," which are based on deliberate and far-reaching calculations, and are executed with vigour and ability, to those of ordinary people who have neither the power nor the will to conduct their affairs in a business-like way. The normal willingness to save, the normal willingness to undergo a certain exertion for a certain pecuniary reward, or the normal alertness to seek the best markets in which to buy and sell, or to search out the most advantageous occupation for oneself or for one's children—all these and similar phrases must be relative to the members of a particular class at a given place and time: but, when that is once understood, the theory of normal value is applicable to the actions of the unbusiness-like classes in the same way, though not with the same precision of detail, as to those of the merchant or banker.

And as there is no sharp line of division between conduct which is normal, and that which has to be provisionally neglected as abnormal, so there is none between normal values and "current" or "market" or "occasional" values. The latter are those values in which the accidents of the moment exert a preponderating influence; while normal values are those which would be ultimately attained, if the economic conditions under view had time to work out undisturbed their full effect. But there is no impassable gulf between these two; they shade into one another by continuous gradations. The values which we may regard as normal if we are thinking of the changes from hour to hour on a Produce Exchange, do but indicate current variations with regard to the year's history: and the normal values with

reference to the year's history are but current values with reference to the history of the century. For the element of Time, which is the centre of the chief difficulty of almost every economic problem, is itself absolutely continuous: Nature knows no absolute partition of time into long periods and short; but the two shade into one another by imperceptible gradations, and what is a short period for one problem, is a long period for another.

Thus for instance the greater part, though not the whole, of the distinction between Rent and Interest on capital turns on the length of the period which we have in view. That which is rightly regarded as interest on "free" or "floating" capital, or on new investments of capital, is more properly treated as a sort of rent—a *Quasi-rent* it is called below—on old investments of capital. And there is no sharp line of division between floating capital and that which has been "sunk" for a special branch of production, nor between new and old investments of capital; each group shades into the other gradually. And thus even the rent of land is seen, not as a thing by itself, but as the leading species of a large genus; though indeed it has peculiarities of its own which are of vital importance from the point of view of theory as well as of practice.

Again, though there is a sharp line of division between man himself and the appliances which he uses; and though the supply of, and the demand for, human efforts and sacrifices have peculiarities of their own, which do not attach to the supply of, and the demand for, material goods; yet, after all, these material goods are themselves generally the result of human efforts and sacrifices. The theories of the values of labour, and of the things made by it, cannot be separated: they are parts of one great whole; and what differences there are between them even in matters of detail, turn out on inquiry to be, for the most part, differences of degree

rather than of kind. As, in spite of the great differences in form between birds and quadrupeds, there is one Fundamental Idea running through all their frames, so the general theory of the equilibrium of demand and supply is a Fundamental Idea running through the frames of all the various parts of the central problem of Distribution and Exchange [1].

Another application of the principle of Continuity is to the use of terms. There has always been a temptation to classify economic goods in clearly defined groups, about which a number of short and sharp propositions could be made, to gratify at once the student's desire for logical precision, and the popular liking for dogmas that have the air of being profound and are yet easily handled. But great mischief seems to have been done by yielding to this temptation, and drawing broad artificial lines of division where Nature has made none. The more simple and absolute an economic doctrine is, the greater will be the confusion which it brings into attempts to apply economic doctrines to practice, if the dividing lines to which it refers cannot be found in real life. There is not in real life a clear line of division between things that are and are not Capital, or that are and are not Necessaries, or again between labour that is and is not Productive.

The notion of continuity with regard to development is common to all modern schools of economic thought, whether the chief influences acting on them are those of biology, as represented by the writings of Herbert Spencer; or of history

[1] In the *Economics of Industry* published by my wife and myself in 1879 an endeavour was made to show the nature of this fundamental unity. A short provisional account of the relations of demand and supply was given before the theory of Distribution; and then this one scheme of general reasoning was applied in succession to the earnings of labour, the interest on capital and the Earnings of Management. But the drift of this arrangement was not made sufficiently clear; and on Professor Nicholson's suggestion, more prominence has been given to it in the present volume.

and philosophy, as represented by Hegel's *Philosophy of History*, and by more recent ethico-historical studies on the Continent and elsewhere. These two kinds of influences have affected, more than any other, the substance of the views expressed in the present book; but their form has been most affected by mathematical conceptions of continuity, as represented in Cournot's *Principes Mathématiques de la Théorie des Richesses*. He taught that it is necessary to face the difficulty of regarding the various elements of an economic problem,—not as determining one another in a chain of causation, *A* determining *B*, *B* determining *C*, and so on—but as all mutually determining one another. Nature's action is complex: and nothing is gained in the long run by pretending that it is simple, and trying to describe it in a series of elementary propositions.

Under the guidance of Cournot, and in a less degree of von Thünen, I was led to attach great importance to the fact that our observations of nature, in the moral as in the physical world, relate not so much to aggregate quantities, as to increments of quantities, and that in particular the demand for a thing is a continuous function, of which the "marginal"[1] increment is, in stable equilibrium, balanced against the corresponding increment of its cost of production. It is not easy to get a clear full view of continuity in this aspect without the aid either of mathematical symbols or of diagrams. The use of the latter requires no special knowledge, and they often express the conditions of economic life more accurately, as well as more easily, than do mathematical symbols; and therefore they have been applied as supplementary illustrations in the footnotes of the present volume. The argument in the text is never dependent on them; and

[1] The term "marginal" increment I borrowed from von Thünen, and it is now commonly used by German economists. When Jevons' Theory appeared, I adopted his word "final"; but I have been gradually convinced that "marginal" is the better.

they may be omitted; but experience seems to show that they give a firmer grasp of many important principles than can be got without their aid; and that there are many problems of pure theory, which no one who has once learnt to use diagrams will willingly handle in any other way.

The chief use of pure mathematics in economic questions seems to be in helping a person to write down quickly, shortly and exactly, some of his thoughts for his own use: and to make sure that he has enough, and only enough, premisses for his conclusions (i.e. that his equations are neither more nor less in number than his unknowns). But when a great many symbols have to be used, they become very laborious to any one but the writer himself. And though Cournot's genius must give a new mental activity to everyone who passes through his hands, and mathematicians of calibre similar to his may use their favourite weapons in clearing a way for themselves to the centre of some of those difficult problems of economic theory, of which only the outer fringe has yet been touched; yet it seems doubtful whether any one spends his time well in reading lengthy translations of economic doctrines into mathematics, that have not been made by himself. A few specimens of those applications of mathematical language which have proved most useful for my own purposes have, however, been added in an Appendix[1].

[1] Many of the diagrams in this book have appeared in print already: and I may take this opportunity of giving their history. Mr Henry Cunynghame who was attending my lectures in 1873, seeing me annoyed by being unable to draw a series of rectangular hyperbolas, invented a beautiful and original machine for the purpose. It was shown at the Cambridge Philosophical Society in 1873; and, to explain its use, I read a paper (briefly reported in the *Proceedings*, Part xv. pp. 318—9), in which I described the theories of Multiple Positions of Equilibrium and of Monopoly values very nearly as they are given below (Book v. Ch. v. and viii.). In 1875—7 I nearly completed a draft of a treatise on *The Theory of Foreign Trade, with some allied problems relating to the doctrine of Laisser Faire*. The first Part of it was intended for general use, while the second Part was technical; nearly all the diagrams that are now in Book v. Ch. v., vii. and viii. were introduced in it, in connection with the problem of the

I have to acknowledge much assistance in preparing this volume for the press. My wife has aided and advised me at every stage of the MSS. and of the proofs, and it owes a very great deal to her suggestions, her care and her judgment. Mr J. N. Keynes, and Mr L. L. Price have read all the proofs and have never returned me any without improving them much: Mr Arthur Berry and Mr A. W. Flux have given me valuable help in connection with the mathematical Appendix; and my father, Mr W. H. B. Hall and Mr C. J. Clay have assisted me on special points.

relation of Protection to the Maximum Satisfaction of the community; and there were others relating to Foreign Trade. But in 1877 I turned aside to work at the *Economics of Industry*, and afterwards was overtaken by an illness, which nearly suspended my studies for several years. Meanwhile the MSS. of my first projected treatise were lying idle: and it is to them that Professor Sidgwick refers in the Preface to his *Political Economy*. With my consent he selected four chapters (not consecutive) out of the second Part, and printed them for private circulation. These four chapters contained most of the substance of Book v. Ch. v. and VII., but not Ch. VIII. of the present work; together with two chapters relating to the equilibrium of foreign trade. They have been sent to many economists in England and on the Continent: it is of them that Jevons speaks in the Preface to the Second Edition of his *Theory* (p. xlv); and many of the diagrams in them relating to foreign trade have been reproduced with generous acknowledgements by Prof. Pantaleoni in his *Principii di Economia Pura*.

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CORRIGENDA.

P. 1, l. 4, for *a* read *and*
P. 17, l. last but three, for *Peloponnesus* read *Hellas Proper*
P. 60, reference at end of footnote should be to *note at end of Bk. VI.*
P. 89, the explanation of the phrase "the action of a law," given in the first footnote on p. 545 should have been inserted here
P. 101, l. 19, for *plan* read *place*
P. 102, footnote l. 2, for *trader* read *producer*
P. 139, l. 1, for *total* read *gross*
P. 147, l. 8, for *sixth* read *seventh*
P. 178, footnote, the last paragraph of Note VI. in the Appendix should have been inserted here
P. 435, l. 7, before *satisfaction* insert *intensity of the*
P. 490, footnote, last line but five, after *margin of* add *cultivation or*
P. 564, footnote, for *loss* read *gain*
P. 605, l. 12, for *determined* read *derived*

BOOK I.

PRELIMINARY SURVEY.

CHAPTER I.

INTRODUCTION.

§ 1. POLITICAL ECONOMY, or ECONOMICS, is a study of man's actions in the ordinary business of life; it inquires how he gets his income and how he uses it. Thus it is on the one side a study of wealth and on the other, a more important side, a part of the study of man. For man's character has been moulded by his every-day work, and by the material resources which he thereby procures, more than by any other influence unless it be that of his religious ideals. In fact the two great forming agencies of the world's history have been the religious and the economic. Here and there the ardour of the military or the artistic spirit has been for a while predominant: but religious and economic influences have nowhere been displaced from the front rank even for a time; and they have nearly always been more important than all others put together. Religious motives are more intense than economic; but their direct action seldom extends over so large a part of life. For the business by which a person earns his livelihood generally fills his thoughts during by far the greater part of those hours in which his mind is at its best; during them his character is being formed by the way in which he uses his faculties in his work, by the thoughts and the feelings which it suggests, and by his

Economics is on one side a study of wealth and on the other a branch of the study of man.

The history of the world has in the main been shaped by religious and economic forces.

Man's character formed by his daily work.

relations to his associates in work, his employers or his employés.

Poverty causes degradation.

And very often the influence exerted on a person's character by the amount of his income is hardly less, if it is less, than that exerted by the way in which it is earned. It makes indeed little real difference to the life of a family whether its yearly income is £1000 or £5000. But it makes a very great difference whether the income is £30 or £150: with £150 the family has, with £30 it has not, the material conditions of a complete life. It is true that in religion, in the family affections and in friendship, even the poor may find scope for many of those faculties which are the source of the highest happiness. But the conditions which surround extreme poverty, especially in densely crowded places, tend to deaden the higher faculties. Those who have been called the "residuum" of our large towns have little opportunity for friendship; they know nothing of the decencies and the quiet, and very little even of the unity of family life; and religion seldom reaches them. No doubt their physical, mental, and moral ill-health is partly due to other causes than poverty, but this is the chief cause.

And in addition to the residuum there are vast numbers of people both in town and country who are brought up with insufficient food, clothing, and house-room, whose education is broken off early in order that they may go to work for wages, who thenceforth are engaged during long hours in exhausting toil with imperfectly nourished bodies, and have therefore no chance of developing their higher mental faculties. Their life is not necessarily unhealthy, or unhappy. Rejoicing in their affections towards God and man, and perhaps even possessing some natural refinement of feeling, they may lead lives that are far less incomplete than those of many who have more material wealth. But for all that their poverty is a great and almost unmixed evil to them. Even when they are well their weariness often amounts to pain, while their pleasures are few; and when sickness comes, the suffering caused by poverty increases tenfold. And though a contented spirit may go far towards reconciling them to these evils, there are others to which it ought not to reconcile them.

Overworked and undertaught, weary and careworn, without quiet and without leisure, they have no chance of making the best of their mental faculties.

Although then some of the evils which commonly go with poverty are not its necessary consequences; yet, broadly speaking, "the destruction of the poor is their poverty": and the study of the causes of poverty is the study of the causes of the degradation of a large part of mankind.

The world has outgrown the belief that slavery is necessary: will it not outgrow the belief that poverty is necessary?

§ 2. Slavery was regarded by Aristotle as an ordinance of nature, and so probably was it by the slaves themselves in olden time. The dignity of man was proclaimed by the Christian religion: it has been asserted with increasing vehemence during the last hundred years: but it is only through the spread of education during quite recent times that we are beginning at last to feel the full import of the phrase. Now at last we are setting ourselves seriously to inquire whether it is necessary that there should be any so called "lower classes" at all: that is whether there need be large numbers of people doomed from their birth to hard work in order to provide for others the requisites of a refined and cultured life; while they themselves are prevented by their poverty and toil from having any share or part in that life.

The hope that poverty and ignorance may gradually be extinguished derives indeed much support from the steady progress of the working classes during the present century. The steam engine has relieved them of much exhausting and degrading toil; wages have risen; education has been improved and become more general; the railway and the printing press have enabled members of the same trade in different parts of the country to communicate easily with one another, and to undertake and carry out broad and far-seeing lines of policy; while the growing demand for intelligent work has caused the artisan classes to increase so rapidly that they now outnumber those whose labour is entirely unskilled. A great part of the artisans have ceased to belong to the "lower classes" in the sense in which the term was originally used; and some of them already lead a more refined and noble life than did the majority of the upper classes even a century ago.

This progress has done more than anything else to give practical interest to the question whether it is really impossible that all should start in the world with a fair chance of leading a cultured life, free from the pains of poverty and the stagnating influences of excessive mechanical toil; and this question is being pressed to the front by the growing earnestness of the age.

This question gives its highest interest to economic science.

The question cannot be fully answered by economic science; for the answer depends partly on the moral and political capabilities of human nature; and on these matters the economist has no special means of information; he must do as others do, and guess as best he can. But the answer depends in a great measure upon facts and inferences, which are within the province of economics; and this it is which gives to economic studies their chief and their highest interest.

But first we must inquire how it is that economic science is in the main of recent growth.

§ 3. But before considering in detail the purpose and scope of economic science it is advisable to trace the chief steps by which it has arrived at its present position. Some explanation is required, at starting, of the paradox that a science which deals with such vital questions is still in its infancy. This is partly because the bearing of economics on the higher well being of man has been overlooked; and a science which has wealth for its subject matter, is repugnant at first sight to the studious mind. Those who do most to advance the boundaries of knowledge, seldom care much about the possession of wealth for its own sake: and it is not unnatural that their just contempt for wealth as an end of life should extend itself to the study of wealth, and cause them generally to neglect it. But the chief part of the explanation is to be found in the fact that most of the phenomena with which modern economic science is concerned, are themselves in their infancy.

This will be found to be chiefly because many of the phenomena with which it is now

The ordinary business of life is entirely different in form from what it was even a little while ago. It may be true that the change in substance is not so great as the change in outward form; and it will be argued later on that much more of modern economic theory than at first appears can be adapted to the conditions of backward races. But unity

in substance underlying many varieties of form is not easy to detect; and the changes in form have had the effect of making writers in all ages profit less than they otherwise might have done by the work of their predecessors. Modern economic phenomena however, though very complex, are in many ways more definite than those of earlier times. Business is more clearly marked off from other concerns of life, the rights of individuals as against others and as against the community are more sharply defined, and above all the emancipation from custom, and the growth of free activity, of constant forethought and restless enterprise have given a new precision and a new prominence to the causes that determine value. The starting point of our science therefore cannot be made clear without a brief account of the growth of modern forms of business; and to that we proceed next. We are however in difficulty for want of a word to express properly the special character of modern business.

concerned are also of recent date.

§ 4. It is often said that the modern forms of business are distinguished from the earlier by being more competitive. But this account is not quite satisfactory. The strict meaning of competition seems to be the racing of one person against another, with special reference to bidding for the sale or purchase of anything. This kind of racing in business is no doubt both more intense and more widely extended than it used to be: but it is only a secondary, and one might almost say, an accidental consequence from the fundamental characteristics of modern business.

The fundamental characteristic of modern business is not competition, which is only a secondary feature,

There is no one term that will express these characteristics adequately. They are, as we shall presently see, a certain independence and habit of choosing one's own course for oneself, a self-reliance; a deliberation and yet a promptness of choice and judgment, and a habit of forecasting the future and of shaping one's course with reference to distant aims. They may and often do cause people to compete with one another; but on the other hand they may tend, and just now indeed they are tending, in the direction of co-operation and combination of all kinds good and evil. But these tendencies towards collective ownership and collective action are funda-

but self-reliance, independence, deliberate choice and forethought.

mentally different from those of earlier times, because they are the result not of custom, not of any passive drifting into association with one's neighbours, but of free choice by each individual of that line of conduct which after careful deliberation seems to him the best suited for attaining his ends, whether they are selfish or unselfish.

"Competition" implies too much as well as too little.

Further the term "competition" not only fails to go to the root of the matter, and thus errs by defect; it also errs by excess. For it has gathered about it evil savour, and has come to imply a certain selfishness and indifference to the well-being of others. Now it is true that there is less deliberate selfishness in early than in modern forms of industry; but there is also less deliberate unselfishness. It is the deliberateness and not the selfishness that is the characteristic of the modern age.

Man is not more selfish than he was,

Custom in a primitive society extends the limits of the family, and prescribes certain duties to one's neighbours which fall into disuse in a later civilization; but it also prescribes an attitude of hostility to strangers. In a modern society the obligations of family kindness become more intense, though they are concentrated on a narrower area; and neighbours are put more nearly on the same footing with strangers. In ordinary dealings with both of them the standard of fairness and honesty is lower than in some of the dealings of a primitive people with their neighbours, but it is much higher than in their dealings with strangers. Thus it is the ties of neighbourhood alone that have been relaxed. The ties of family are far closer and stronger than before; family affection leads to much more self-sacrifice and devotion than it used to do. And again sympathy with those who are strangers to us is a growing source of a kind of deliberate unselfishness that never existed before the modern age. That country which is the birthplace of modern competition devotes a larger part of its income than any other to charitable uses, and spent twenty millions on purchasing the freedom of the slaves in the West Indies. In every age poets and social reformers have tried to stimulate the people of their own time to a nobler life by enchanting stories of the virtues of the heroes of old. But neither the records of history nor the

contemporary observation of backward races, when carefully studied, give any support to the doctrine that man is on the whole harder and harsher than he was, or that he was ever more willing than he is now to sacrifice his own happiness for the benefit of others in cases where custom and law have left him free to choose his own course. Among races whose intellectual capacity seems not to have developed in any other direction, and who have none of the originating power of the modern business man, there will be found many who show an evil sagacity in driving a hard bargain in a market even with their neighbours. No traders are more unscrupulous in taking advantage of the necessities of the unfortunate than the corn-dealers and money-lenders of the East.

nor more dishonest.

Again the modern era has undoubtedly given new openings for dishonesty in trade. The advance of knowledge has discovered new ways of making things appear other than they are, and has rendered possible many new forms of adulteration. The producer is now far removed from the ultimate consumer; and his wrong doings are not visited with the prompt and sharp punishment which falls on the head of a person who, being bound to live and die in his native village, plays a dishonest trick on one of his neighbours. The opportunities for knavery are certainly more numerous than they were; but there is no reason for thinking that people avail themselves of a larger proportion of such opportunities than they used to do. On the contrary, modern methods of trade imply habits of trustfulness on the one side and a power of resisting temptation to dishonesty on the other, which do not exist among a backward people. Instances of simple truth and personal fidelity are met with under all social conditions: but those who have tried to establish a business of modern type in a backward country find that they can scarcely ever depend on the native population for filling posts of trust. It is even more difficult to dispense with imported assistance for work which calls for a strong moral character than for that which requires great skill and mental ability[1].

[1] Adulteration and fraud in trade were rampant in the middle ages to an extent that is very astonishing when we consider the difficulties of wrong doing

There are thus strong reasons for doubting whether the moral character of business in the modern age compares as unfavourably as is sometimes supposed with that of earlier times. At all events, while the controversy on this point is still unsettled, it is best to describe that character by a term that does not imply any moral qualities whether good or evil, but which indicates the undisputed fact that modern business is characterized by more self-reliant habits, more forethought, more deliberate and free choice. There is not any one term adequate for this purpose: but FREEDOM OF INDUSTRY AND ENTERPRISE, or more shortly, ECONOMIC FREEDOM, points in the right direction, and may be used in the absence of a better.

Economic Freedom.

§ 5. There is another word which will be used during this preliminary survey, and of which some account should be given here.

Value.

"The word VALUE" says Adam Smith "has two different meanings, and sometimes expresses the utility of some particular object and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be called value in use, the other value in exchange." In the place of "value in use" we now speak of "utility;" while instead of "value in exchange" we often say "exchange-value" or simply "value." "Value" by itself always means value in exchange.

The value, that is the exchange value, of one thing in terms of another at any place and time, is the amount of that second thing which can be got there and then in exchange for the first. Thus the term value is relative, and expresses the relation between two things at a particular place and time.

Civilized countries generally adopt gold or silver or both as money. Instead of expressing the values of lead and tin, and wood, and corn and other things in terms of one another we express them in terms of money in the first instance; and call the value of each thing thus expressed its price. If we know that a ton of lead will exchange for fifteen sovereigns

without detection at that time (comp. Ochenkowski's *England's wirthschaftliche Entwickelung im Ausgange des Mittelalters*, pp. 87, and 93—4).

at any place and time, while a ton of tin will exchange for ninety sovereigns, we say that their prices then and there are £15 and £90 respectively, and we know that the value of a ton of tin in terms of lead is six tons then and there.

The price of every thing rises and falls from time to time and place to place; and with every such change the purchasing power of money changes so far as that thing goes. If the purchasing power of money rises with regard to some things and at the same time falls equally with regard to equally important things its general purchasing power, or its power of purchasing things in general, has remained stationary. It is true that this way of speaking is vague, because we have not considered how to compare the importance of different things. This is a difficulty which we shall have to deal with later on: but meanwhile we may accept the phrase in the vague but quite intelligible usage that it has in ordinary discourse.

Throughout the earlier stages of our work it will be best to speak of the exchange value of a thing at any place and time as measured by its price, that is, the amount of money for which it will exchange then and there, and to assume that there is no change in the general purchasing power of money[1].

[1] In this we are only following the practice of the ordinary business of life, which invariably starts by considering one change at a time and assuming for a while that "other things are equal." As Cournot points out (*Principes Mathématiques de la Théorie des Richesses*, Ch. II.), we get the same sort of convenience from assuming the existence of a standard of uniform purchasing power by which to measure value, that astronomers do by assuming that there is a "mean sun" which crosses the meridian at uniform intervals, so that the clock can keep pace with it; whereas the actual sun crosses the meridian sometimes before and sometimes after noon as shown by the clock.

CHAPTER II.

THE GROWTH OF FREE INDUSTRY AND ENTERPRISE.

Individual action and race character act and react on one another: both are much influenced by physical causes.

§ 1. The chief events in history are due to the action of individuals. The conditions which have made these events possible are nearly all traceable to the influence of inherited institutions and race qualities and of physical nature. But race qualities themselves are mainly if not entirely caused by the action of individuals and physical causes in more or less remote time. A strong race has often sprung, in fact as well as in name, from some progenitor of singular strength of body and character. The usages which make a race strong in peace and war are often due to the wisdom of a few great thinkers who have interpreted and developed its customs and rules, perhaps by formal precepts, perhaps by a quiet and almost unperceived influence. But none of these things are of any permanent avail if the climate is unfavourable to vigour: the gifts of nature, her land, her waters, and her skies, determine the character of the race's work, and thus give a tone to social and political institutions.

Savage life is ruled by custom and impulse.

These differences do not show themselves clearly so long as man is still savage. Scanty and untrustworthy as is our information about the habits of savage tribes, we know enough of them to be sure that amid great variety of detail they show a strange uniformity of general character. Whatever be their climate and whatever their ancestry, we find savages living under the dominion of custom and impulse; scarcely ever striking out new lines for themselves; never forecasting the distant future, and seldom making provision even for the near future; fitful in spite of their servitude to custom,

governed by the fancy of the moment; ready at times for the most arduous exertions, but incapable of keeping themselves long to steady work. Laborious and tedious tasks are avoided as far as possible; those which are inevitable, are done by the compulsory labour of women.

Physical causes act most powerfully in the early stages of civilization

It is when we pass from savage life to the early forms of civilization that the influence of physical surroundings forces itself most on our notice. Many of the events even of early history are no doubt to be attributed chiefly to the action of individuals, though our records may be silent about them. But in this stage of his progress man's power of contending with Nature is small: he can do nothing without her generous help. Nature has marked out a few places on the earth's surface as specially favourable to man's first attempts to raise himself from the savage state; and the first growth of culture and the industrial arts was directed and controlled by the physical conditions of these favoured spots.

which have necessarily taken place in warm climates.

Even the simplest civilization is impossible unless man's efforts are more than sufficient to supply him with the necessaries of life; a surplus over them is required to support that mental effort in which progress takes its rise. And therefore, as Buckle has pointed out[1], all early civilizations have been in warm climates where the necessaries of life are small, and where Nature makes bountiful returns even to the rudest cultivation. They have often gathered around a great river which has lent moisture to the soil and afforded an easy means of communication. The rulers have generally belonged to a race that has recently come from a cooler climate in a distant country or in neighbouring mountain lands. For a warm climate is destructive of energy; the force which enabled them to rule has almost in every case been the product of the more temperate climate of their early homes. They have indeed retained much of their energy in their new homes for several generations, living meanwhile in

Ruling castes have given their energies to war and politics, not to industry.

[1] On the general question of the influence of physical surroundings on race character, both directly and indirectly, by determining the nature of the dominant occupations, see Knies, *Politische Œkonomie*, and Hegel's *Philosophy of History*. Compare also Aristotle's *Politics*, and Montesquieu's *Esprit des Lois*.

luxury on the surplus products of the labour of the subject races; and have found scope for their abilities in the work of rulers, warriors, and priests. Originally ignorant, they have quickly learnt the best wisdom that their subjects had to teach, and have carried it further; improving the arts of production and extending the boundaries of knowledge. But in this stage of civilization an enterprising intellectual character has almost always been confined to the ruling few, it has scarcely ever been found in those who have borne the main burden of industry.

The influence of a warm climate.

The reason of this is that the climate which has rendered an early civilization possible has also doomed it to weakness[1]. In colder climates nature provides an invigorating atmosphere; and though man has a hard struggle at first, yet as his knowledge and riches increase he is able to gain plentiful food and warm clothing; and at a later stage he provides himself with those large and substantial buildings which are the most expensive requisites of a cultured life in places in which the severity of the weather makes it necessary that nearly all domestic services and meetings for social intercourse should have the protection of a roof. But the fresh invigorating air which is necessary to the fulness of life cannot be obtained at all when Nature does not freely give it[2]. The labourer may indeed be found doing hard physical work under a tropical sun; the handicraftsman may have artistic instincts; the sage, the statesman or the banker may be acute and subtle: but high temperature makes hard and sustained physical work inconsistent with a high intellectual activity. Under the combined influence of climate and luxury the ruling class gradually loses its strength; fewer and fewer of

[1] Montesquieu says quaintly (Bk. xiv. ch. 2), that the superiority of strength caused by a cold climate produces among other effects "a greater sense of superiority, that is, less desire of revenge and a greater opinion of security, that is, more frankness, less suspicion, policy, and cunning." These virtues are eminently helpful to economic progress.

[2] This may have to be modified a little, but only a little, if Mr Galton should prove to be right in thinking that small numbers of a ruling race in a hot country, as for instance the English in India, will be able to sustain their constitutional vigour unimpaired for many generations by a liberal use of artificial ice, or of the cooling effects of the forcible expansion of compressed air. See his Presidential Address to the Anthropological Institute in 1887.

them are capable of great things: and at last they are overthrown by a stronger race which has come most probably from a cooler climate. Sometimes they form an intermediate caste between those whom they have hitherto ruled and their new rulers; but more often they sink down among the spiritless mass of the people.

In an early civilization movement is slow, but there is movement.

Such a civilization has often much that is interesting to the philosophical historian. Its whole life is pervaded almost unconsciously by a few simple ideas which are interwoven in that pleasant harmony that gives their charm to Oriental carpets. There is much to be learnt from tracing these ideas to their origin in the combined influence of race, of physical surroundings, of religion, philosophy and poetry; of the incidents of warfare and the dominating influence of strong individual characters. All this is instructive to the economist in many ways; but it does not throw a very direct light on the motives, which it is his special province to study. For in such a civilization the ablest men look down on work; there are no bold free enterprising workmen, and no adventurous capitalists; despised industry is regulated by custom, and even looks to custom as its sole protector from arbitrary tyranny.

Custom is never altogether on the side of the strong.

The greater part of custom is doubtless but a crystallized form of oppression and suppression. But a body of custom which did nothing but grind down the weak could not long survive. For the strong rest on the support of the weak, their own strength cannot sustain them without that support; and if they organize social arrangements which burden the weak wantonly and beyond measure, they thereby destroy themselves. Consequently every body of custom that endures, contains provisions that protect the weak from the most reckless forms of injury[1].

and is indeed a necessary protection when the means of communication are small.

In fact when there is little enterprise and no scope for effective competition, custom is a necessary shield to defend people not only from others who are stronger than themselves, but even from their neighbours in the same rank of life. If the village smith can sell his plough-shares to none

[1] Comp. Bagehot's *Physics and Politics*, also Mr Herbert Spencer's and Sir Henry Maine's writings.

but the village; and if the village can buy their shares from no one but him, it is to the interest of all that the price should be fixed at a moderate level by custom. Thus custom earns sanctity: and there is nothing in the first steps of progress that tends to break down the primitive habit of regarding the innovator as impious, and an enemy. The influence of economic causes is pressed below the surface. There they work surely and slowly: but they take generations instead of years to produce their effect; and their action is so subtle as easily to escape observation altogether. They can indeed hardly be traced except by those who have learnt where to look for them by watching the more conspicuous and rapid workings of similar causes in modern times. Thus the "moderate level" at which custom fixes the price of a ploughshare will be found when analysed to mean that which gives the smith in the long run about an equal remuneration (account being taken of all his privileges and perquisites) with that of his neighbours who do equally difficult work; or in other words, that which under the regime of free enterprise, of easy communications and effective competition, we should call a normal rate of pay. If a change of circumstances makes the pay of smiths, including all indirect allowances, either less or more than this, there almost always sets in a change in the substance of the custom, often almost unrecognized and generally without any change in form, which will bring it back to this level. But to this point we must return later on.

Custom is generally a disguised form of slow-moving competition.

§ 2. This force of custom in early civilizations is partly a cause and partly a consequence of the limitations of individual rights in property. As regards all property more or less, but especially as regards land, the rights of the individual are generally derived from and limited by, and in every way subordinate to those of the household and the family in the narrower sense of the term. The rights of the household are in like manner subordinate to those of the village; which is often only an expanded and developed family, according to traditionary fiction if not in fact. The affairs of government have always received the careful attention of historians; and prominence has been given to the influence which the form

Divided ownership strengthens the force of custom and resists changes.

of government have exerted on the development of industry and commerce. But insufficient attention has been paid to that exerted by the collective ownership of property.

It is true that in an early stage of civilization few would have had much desire to depart far from the practices that were prevalent around them. However complete and sharply defined had been the rights of individuals over their own property, they would have been unwilling to face the anger with which their neighbours would regard any innovation, and the ridicule which would be poured on anyone who should set himself up to be wiser than his ancestors. But many little changes would occur to the bolder spirits; and if they had been free to try experiments on their own account, changes might have grown by small and almost imperceptible stages, until sufficient variation of practice had been established to blur the clear outline of customary regulations, and to give considerable freedom to individual choice. When however each head of a household was regarded as only senior partner and trustee for the family property, the smallest divergence from ancestral routine met with the opposition of people who had a right to be consulted on every detail.

And further in the background behind the authoritative resistance of the family was that of the village. For though each family had sole use for a time of its cultivated ground, yet often many operations were conducted in common, so that each had to do the same things as the others at the same time. Each field when its turn came to be fallow, became part of the common pasture land; and the whole land of the village was subject to redistribution from time to time[1].

[1] Though the matter is not altogether free from controversy, there seems good reason to believe that the Teutonic Three Mark system was a survival of primitive customs that had prevailed, of course with endless variety in detail, among the forefathers of nearly all white races. Traces of such a plan exist even now in India and among some Sclavonic peoples, and analogies to it are found among some races of other colours. In the Three Mark system, in its typical form, one small part, the home mark, was set aside permanently for living on, and each family retained its share in that for ever. The second part or arable mark was divided into three large fields, in each of which each family had a plot. Two of these were cultivated every year, and one left fallow. The third and largest part was used as grazing land by the whole village in common; as was also the fallow field in the arable mark. In some cases the arable mark was from time to time abandoned to pasture, and land to make a new arable mark was cut out of

Therefore the village had a clear right to prohibit any innovation; for it might interfere with their plans for the collective cultivation; and it might ultimately impair the value of the land, and thus injure them when the time came for the next redistribution. In consequence there often grew up a complex network of rules, by which every cultivator was so rigidly bound, that he could not use his own judgment and discretion even in the most trivial details. It is probable that this has been the most important of all the causes which have delayed the growth of the spirit of free enterprise among mankind. It may be noticed that the collective ownership of property was in harmony with that spirit of quietism which pervades many eastern religions; and that its long survival among the Hindoos has been partly due to the repose which is inculcated in their religious writings.

The influence of custom on the methods of industry is cumulative.

It is probable that while the influence of custom over prices, wages and rent has been overrated, its influence over the forms of production and the general economic arrangements of society has been underrated. In the one case its effects are obvious, but they are not cumulative; and in the other they are not obvious, but they are cumulative. And it is an almost universal rule that when the effects of a cause, though small at any one time, are constantly working in the same direction, their influence is much greater than at first sight appears possible.

But however great was the influence of custom in early civilization the spirit of Greeks and Romans was full of enterprise, and more interest attaches to the inquiry why modern economic problems were unknown to them.

The Greeks brought Northern energy to bear on Oriental culture.

§ 3. The chief leadership of progress has fallen to the successive waves of Aryans that have spread over Europe and Asia from their early homes in lands of frost and snow[1]. Some went far southwards early: early they became rulers

the common mark, and this involved a redistribution. Thus the treatment of its land by every family affected for good or ill all the members of the village.

[1] It matters little for our purposes whether this home was in the lofty plateau that forms the centre of the Asiatic European Continent, or as some now contend, in the north of Europe.

and leaders of other nations, and early they lost their best strength under the influence of luxury and a warm climate. But others went on increasing in strength through long centuries amid the invigorating influences of a bracing climate and constant conflict; and at last a band of them, spreading southwards from the Danube, found itself in a mountainous land whose many harbours opened on the Mediterranean Sea. Each harbour was cut off from its neighbours by the mountains and was united by the sea with the most suggestive thoughts and mysteries of the world. The Greeks were within a few days' sail of nearly all that was best worth knowing about, whether in thought or feeling, in action or in aspiration. Persia, Assyria, Phœnicia, Judæa, and Egypt, were all at the eastern end of that great sea that unites Asia, Africa, and Europe; and India was not far off.

The older civilizations had been chiefly inland.

The new impulse towards freedom in thought and action came from the sea. Great river basins had been the homes of most of the earlier civilizations: famine seldom visited their well-watered plains; for in a climate in which heat is never lacking, the fertility of the soil varies almost directly with its moisture: and their channels offered means of easy communication that were favourable to simple forms of trade and division of labour, and did not hinder the movements of the large armies by which the despotic force of the central government was maintained. It is true that the Phœnicians lived on the sea. This great Semitic race did good service by preparing the way for free intercourse among many peoples, and by spreading the knowledge of writing, of arithmetic, and of weights and measures: but they gave their chief energies to commerce and manufacture. It was left for the genial sympathies and the fresh spirit of the Greeks to breathe in the full breath of freedom from the sea: and to develop in their own free lives the best thoughts and the highest art of the Old World.

The sea gave the Greeks knowledge, freedom, and the power of variation.

Their numberless settlements in Asia Minor, Magna Græcia, and last of all in the Peloponnesus, developed freely their own ideals under the influence of the new thoughts that burst upon them; having constant intercourse with one another, as well as with those who held the keys of the older

learning; sharing one another's experiences, but fettered by no authority. Energy and enterprise, instead of being repressed by the weight of traditional usage, were encouraged to found a new colony and work out new ideas without restraint.

Their climate made culture inexpensive,

Their climate absolved them from the need of exhausting work; they left to their slaves what drudgery had to be done, and gave themselves up to the free play of their fancy. House-room, clothing and firing cost but little; their genial sky invited them to out-of-door life, making intercourse for social and political purposes easy and without expense.

and yet did not quickly relax their strength.

And yet the cool breezes of the Mediterranean so far refreshed their vigour, that they did not for many generations lose the spring and elasticity of temper which they had brought from their homes in the North. Under these conditions were matured a sense of beauty in all its forms, a subtle fancy and an originality of speculation, an energy of political life, and a delight in subordinating the individual to the state, such as the world has never again known[1].

Modern in many respects, they regarded industry as specially belonging to slaves, and therefore they did not anticipate modern economic problems.

The Greeks were more modern in many respects than the peoples of mediæval Europe, and in some respects were even in advance of our own time. But they did not attain to the conception of the dignity of man as man; they regarded slavery as an ordinance of nature, they tolerated agriculture but they looked on all other industries as involving degradation[2]; and modern economic problems were unknown to them.

They had never felt the extreme pressure of poverty. Earth and sea, and sun and sky had combined to make it easy for them to obtain the material requisites for a perfect life. Even their slaves had considerable opportunities of

[1] Compare Neumann and Partsch, *Physikalische Geographie von Griechenland*, ch. I.

[2] "Nature has made neither bootmakers nor blacksmiths, such occupations degrade the people engaged in them, miserable mercenaries excluded by their very position from political rights." (Plato, *Laws*, XII.) "In the state which is best governed the citizens...must not lead the life of mechanics or tradesmen, for such a life is ignoble and inimical to virtue." (Aristotle's *Politics*, VII. 9; see also III. 5.) These passages give the key-note of Greek thought with regard to business. But of course there were few independent fortunes, especially in the early days of Greece, so that many of their best thinkers were compelled to take some share in business.

culture: and had it been otherwise, there was nothing in the Greek temper, and nothing in the lessons that the world had up to that time learnt, to make them seriously concerned. The excellence of Greek thought has made it a touchstone by which many of the leading thinkers of after ages have tried every new inquiry: and the impatience with which the academic mind has often regarded the study of economics is in a great measure due to the impatience which the Greeks felt for the anxious cares and plodding work of business.

Their impatience of the discipline of steady industry led to their fall.

And yet a lesson might have been learnt from the quick decadence of Greece; which was brought about by the want of that solid earnestness of purpose, which no race has ever maintained for many generations without the discipline of steady industry. Socially and intellectually they were free: but they had not learnt to use their freedom well; they had no self-mastery, no steady persistent resolution. They had all the quickness of perception and readiness for new suggestions which are elements of business enterprise; but they had not its fixity of purpose and patient endurance. The genial climate gradually relaxed their physical energies; they were without that safeguard to strength of character which comes from resolute and stedfast persistence in hard work; and they sank into frivolity.

The strength of character of the Romans fitted them for business, but they preferred to acquire wealth by the sword,

§ 4. Civilization still moving westwards had its next centre in Rome. The Romans were a great army, rather than a great nation. They resembled the Greeks in leaving business as much as possible to slaves: but in most other respects were a contrast to them. In opposition to the fresh fulness of the life of the Greeks, to the youthful joy with which they gave free play to all their faculties and developed their own idiosyncracy, the Romans showed the firm will, the iron resolution, the absorption in definite serious aims of the mature man[1].

[1] This fundamental opposition between the Greek and Roman tempers was made clear by Hegel in his *Philosophy of History*. He calls the freedom from outward control, whether of thought or action, *objective freedom*; while he gives the name of *subjective freedom* to the freedom from waywardness, "the freedom of spirit which rêposes on itself, absolute self-determination." The former belonged to the Greeks, the latter to the Romans; while the Teutonic spirit under the influence of Christianity is uniting the two and working towards complete freedom. Compare also Kautz, *Entwickelung der National Œkonomie*, Bk. 1.

They were strong and daring, steady of purpose and abundant in resource: they had in constant use all the faculties that are required for business enterprise. Singularly free from the restraints of custom, every one shaped his own life for himself with a deliberate choice that had never been known before: in fact the freedom of trade, of commerce, and of movement throughout the civilized world was in some respects greater in the days of the Roman empire than it is even now[1].

and thus exerted little direct influence on economic science.

But as soon as Rome obtained dominion, her ablest citizens withdrew themselves from business, and gave their strength to politics, to the arts of government, and to some slight extent to the arts of culture. They respected agriculture; but they allowed large farms worked by slaves to take the place of the small holdings of freemen. They were by no means superior to the lust for wealth; but they acquired it by the sword. So gained it led to a hardness of spirit and a reckless wickedness of luxury amid which Rome fell, having done even less than Greece had done towards investigating the economic conditions of social well-being.

But indirectly they influenced it for good and evil by founding the modern law of property.

But yet in one direction Rome had a great influence over succeeding economic thought, for she laid the foundations of jurisprudence. What philosophic thought there was in Rome was chiefly Stoic; and most of the great Roman Stoics were of Oriental origin. Their philosophy when transplanted to Rome developed a great practical power without losing its intensity of feeling; and in spite of its severity, it had in it much that is kindred to the suggestions of modern social science. Most of the great lawyers of the Empire were among its adherents, and thus it set the tone of the later Roman Law, and through it of all modern European Law.

The Stoic philosophy and the cosmopolitan experience of the later Roman lawyers

Now the strength of the Roman State had caused State rights to extinguish those of the Clan and the Tribe in Rome at an earlier stage than in Greece. But many of the primitive Aryan habits of thought as to property lingered on for a long while even in Rome. Great as was the power of the head of the family over its members, the property which he con-

[1] Comp. Nasse's *Entwickelung des wirthschaftlichen Individualismus in England* (*Preussische Jahrbücher*, Vol. LVII. p. 430).

trolled was for a long time regarded as vested in him as the representative of the family rather than as an individual. But when Rome had become imperial, her lawyers became the ultimate interpreters of the legal rights of many nations: and under Stoic influence they set themselves to discover the fundamental Laws of Nature, which they believed to underlie the laws of all nations. This search for the essential, as opposed to the accidental elements of justice acted as a powerful solvent on rights of common holding for which no other reason than that of usage could be given. The later Roman law therefore gradually but steadily enlarged the sphere of contract; gave it greater precision, greater elasticity, and greater strength. At last almost all social arrangements had come under its dominion; the property of the individual was clearly marked out, and he could deal with it as he pleased[1]. We see then that from the breadth and nobility of the Stoic character modern lawyers have inherited a high standard of duty: and from its austere self-determination they have derived a tendency to define sharply individual rights in property. And therefore to Roman and especially Stoic influence we may trace indirectly much of the good and evil of our present economic system; on the one hand much of the untrammelled vigour of the individual in managing his own affairs, and on the other not a little harsh wrong done under the cover of rights established by a system of law which has held its ground because its main principles are wise and just.

led them gradually to enlarge the sphere of contract.

The strong sense of duty which Stoicism brought with it from its Oriental home had in it something also of Eastern quietism. The Stoic though active in well-doing was proud of being superior to the troubles of the world: he took his share in the turmoil of life because it was his duty to do so, but he never reconciled himself to it: his life remained sad and stern, oppressed by the consciousness of its own failures. This inner contradiction, as Hegel says, could not pass away till inward perfection was recognized as an object that could be attained only through self-renunciation; and thus its pur-

The pride and apathy of the Stoics deprived their lives of inward harmony. The reconciliation of social duties with a striving after perfection

[1] As regards the whole of this subject, Englishmen owe conspicuous debts to Sir Henry Maine's writings.

suit was reconciled with those failures which necessarily accompany all social work[1]. For this great change the intense religious feeling of the Jews prepared the way. But the world was not ready to enter into the fulness of the Christian spirit, till a new tone had been given to it by the deep personal affections of the German race. Even among the German peoples true Christianity made its way slowly: and for a long time after the fall of Rome there was chaos in Western Europe.

was effected by Christianity.

§ 5. The Teuton, strong and resolute as he was, found it very difficult to free himself from the bonds of custom and of ignorance. The heartiness and fidelity[2] which gave him his special strength, inclined him to cherish overmuch the institutions and customs of his family and his tribe. No other great conquering race has shown so little capacity as the Teutons have done for adopting new ideas from the more cultured, though weaker, people whom they conquered. They prided themselves on their rude strength and energy; and cared little for knowledge and the arts. But these found a temporary refuge on the Eastern coasts of the Mediterranean; until another conquering race coming from the south was ready to give them new life and vigour.

The Teuton slow to learn from those whom he had conquered.

The Saracens learnt eagerly the best lessons that the conquered had to teach. They nurtured the arts and sciences, and kept alive the torch of learning at a time when the Christian world cared little whether it went out or not; and for this we must ever owe them gratitude. But their moral nature was not so full as that of the Teutons. The warm climate and the sensuality of their religion caused their vigour rapidly to decay; and they have exercised very little direct influence on the problems of modern civilization[3].

Our debt to the Saracens.

The education of the Teutons made slower but surer progress. They carried civilization northwards to a climate in

Later on civilization moved

[1] Hegel's *Philosophy of History*, Part III. § iii.

[2] Hegel (*Philosophy of History*, Part IV.) goes to the root of the matter when he speaks of their energy, their free spirit, their absolute self-determination (Eigensinn), their heartiness (Gemüth), and adds, "Fidelity is their second watchword as Freedom is the first."

[3] A brilliant eulogy of their work is given by Draper, *Intellectual Development of Europe*, ch. xiii.

which sustained hard work has gone hand in hand with the slow growth of sturdy forms of culture; and they carried it westwards to the Atlantic. Civilization which had long ago left the shores of the rivers for those of the great inland sea, was ultimately to travel over the vast ocean.

northwards and westwards,

But these changes worked themselves out slowly. The first point of interest to us in the new age is the re-opening of the old conflict between town and nation that had been suspended by the universal dominion of Rome; which was indeed an army with head-quarters in a town, but drawing its power from the broad land.

and the old contest between town and country revived.

§ 6. Until a few years ago complete and direct self-government by the people was impossible in a great nation: it could exist only in towns or very small territories. Government was necessarily in the hands of the few, who looked upon themselves as privileged upper classes, and who treated the workers as lower classes. Consequently the workers, even when permitted to manage their own local affairs, had not the courage, the self-reliance, and the habits of mental activity, which are required as the basis of business enterprise. And as a matter of fact both the central Government and the local magnates did interfere directly with the freedom of industry; prohibiting migration, and levying taxes and tolls of the most burdensome and vexatious character. Even those of the lower classes who were nominally free, were plundered by arbitrary fines and dues levied under all manner of excuses, by the partial administration of justice and often by direct violence and open pillage. These burdens fell chiefly on just those people who were more industrious and more thrifty than their neighbours, those among whom, if the country had been free, the spirit of free enterprise would gradually have arisen to shake off the bonds of tradition and custom.

So long as there was no telegraph and printing press, freedom in a large country could only be that of the aristocracy, not of the common people.

Far different was the state of people in the towns. There the industrial classes found strength in their numbers; and even when unable to gain the upper hand altogether, they were not, like their brethren in the country, treated as though they belonged to a different order of beings from their rulers. In Florence and in Bruges, as in ancient Athens, the whole people could hear from the leaders of

But there could always be real self-government by the people in the free towns.

public policy a statement of their plans and the reasons for them, and could signify their approval or disapproval before the next step was taken. The whole people could discuss together the social and industrial problems of the time, knowing each other's counsel, profiting by each other's experience, working out in common a definite resolution and bringing it into effect by their own action. But nothing of this kind could be done over a wide area till the invention of the telegraph, the railway and the cheap press.

Such as is now for the first time possible in a large country.

By their aid a nation can now read in the morning what its leaders have said on the evening before; and ere another day has passed the judgment of the nation on it is pretty well known. By their aid the council of a large trades-union can at a trifling cost submit a difficult question to the judgment of their members in every part of the country and get their decision within a few days. Even a large country can now be ruled by its people; but till now what was called "popular Government" was of physical necessity the government by a more or less wide oligarchy. Only those few who could themselves go frequently to the centre of Government, or who could at least receive constant communication from it, could take part directly in government. And though a much larger number of people would know enough of what was going on to make their will broadly effective, through their choice of representatives, yet even they were till a few years ago a very small minority of the whole nation; and the representative system itself is only of recent date.

The case of Switzerland is exceptional.

Switzerland indeed has been free: for its mountains oppose hindrance to the movements of large armies, and render cavalry almost useless; and it has nourished a sturdy race which has been strengthened from time to time by refugees from among the bolder spirits of neighbouring lands. But the range of intercourse of those who live in mountains is generally small. Except when enriched by the lavish expenditure of tourists from more favoured lands, they live hard lives, overworked during their short summer, and stagnating in close rooms during their long winter. They have not therefore had that mental activity and enterprise which has characterized the free cities.

§ 7. In the Middle Ages then the history of the rise and fall of towns is the history of the rise and fall of successive waves on the tide of progress. The mediæval towns as a rule owed their origin to industry, and did not despise it. And though wealthier citizens would often succeed for a time in establishing a close government in which the workers had no part, they seldom retained their power long. As a rule the great body of the inhabitants were full citizens, deciding for themselves the foreign and domestic policy of their city, and at the same time working with their hands and taking pride in their work. They organized themselves into Gilds, thus increasing their cohesion and educating themselves in self-government. And though their self-imposed regulations proved ultimately oppressive, they fitted the conditions of industry for a long time so well that their pressure was not felt. And as they could be altered deliberately when there was any strong occasion for change, there was comparatively little of that dominion of custom which is unrecognized and therefore deadening. The same compactness which rendered it possible for the whole people to meet together for political purposes, enabled them quickly to agree on any changes that their industry might require.

The Mediæval towns were the direct precursors of modern industrial civilization.

As time went on they gained culture, but without losing energy; without neglecting their business, they learnt to take an intelligent interest in many things besides their business. They were thus the true precursors of modern industrial civilization; and if they had been left to go on their course undisturbed, they would probably long ago have worked out the solutions of many economic problems which we are only now beginning to face. But after being long troubled by tumults and war, they at last succumbed to the growing military power of the countries by which they were surrounded.

But were crushed.

§ 8. Feudalism was perhaps a necessary stage in the development of the Teutonic race. It gave scope to the political ability of the dominant class, and it quickly brought wild and turbulent people into some sort of discipline and order. But it concealed under forms of some outward beauty much cruelty and uncleanness physical and moral. The

Chivalry prescribed a high code of honour towards those who were well born, but it used

harsh measures to keep the lower classes in their place.

practices of chivalry combined extreme deference to women in public with much domestic tyranny: it combined elaborate rules of courtesy towards combatants of the knightly order with cruelty and extortion in dealing with the lower classes. The ruling classes were expected to discharge their obligations towards one another with frankness and generosity[1]: they had ideals of life which were not devoid of nobility; and therefore their characters will always have some attractiveness to the thoughtful historian as well as to the chronicler of wars, of splendid shows and of romantic incidents. But their consciences were satisfied when they had acted up to the code of duty which their own class required of them: and one article of that code was to keep the lower classes in their place; though they were often kind and even affectionate towards those retainers with whom they lived in daily contact.

The Church helped the growth of economic freedom in some ways.

So far as cases of individual hardship went, the Church strove to defend the weak and to diminish the sufferings of the poor. Perhaps those finer natures who were attracted to its service might often have exercised a wider and a better influence, if they had been free from the vow of celibacy, and able to mingle with the world. But this is no reason for rating lightly the benefit which the clergy, and still more the monks, rendered to the poorer classes. The monasteries were the homes of industry, and in particular of the scientific treatment of agriculture: they were secure colleges for the learned, and they were hospitals and alms-houses for the suffering. The Church acted as a peace-maker in great matters and in small: the festivals, and the markets held under its authority gave freedom and safety to trade[2].

[1] Treachery was however common. People compassed the death of their acquaintances by assassination and poison: the host was often expected to taste the food and drink which he offered to his guest. But as a painter rightly fills his canvas with the noblest faces he can find, and keeps in the background as much as possible anything that is disgusting, so the popular historian may be justified in exciting the emulation of the young by historical pictures in which the lives of noble men and women stand out in bold relief, while a veil is drawn over much of the surrounding depravity. When however we want to take stock of the world's progress, we must reckon the evil of past times as it really was; to be more than just to our ancestors is then to be less than just to the best hopes of our race.

[2] We are perhaps apt to lay too much stress on the condemnation by the Church of "usury" and trade. There was then very little scope for lending

Again the Church was a standing protest against caste exclusiveness. It was democratic in its organization, as was the army of ancient Rome. It was always willing to raise to the highest posts the ablest men in whatever rank they were born: its clergy and monastic orders did much for the physical and moral well-being of the people: and it sometimes even led them in open resistance to the tyranny of their rulers.

Rise of Church as a democratic institution.

But it did not set itself to help them to develop their faculties of self-reliance and self-determination, and to attain true inner freedom. While willing that those individuals who had exceptional natural talents should rise through its own offices to the highest posts it helped rather than hindered the forces of feudalism in their endeavour to keep the working classes as a body ignorant, devoid of enterprise, and in every way dependent on those above them. Teutonic feudalism was more kindly in its instincts than the military dominion of ancient Rome: and laity as well as clergy were influenced by the teachings, imperfectly understood as they were, of the Christian religion with regard to the dignity of man as man. Nevertheless the rulers of the country districts during the early middle ages united all that was most powerful in the oriental subtlety of theocratic caste and in the Roman form of discipline and resolution, and used their combined forces in such a manner as on the whole to retard the growth of strength and independence of character among the lower orders of the people.

Feudalism hindered rather than helped the growth of freedom.

The military force of feudalism was however for a long time weakened by local jealousies. It was admirably adapted for welding into one living whole the government of a vast area under the genius of a Charles the Great: but it was equally prone to dissipate itself into its constituent elements as soon as its guiding genius was gone. Italy was for a long

Feudal organization was at first unstable but at length overthrew the freedom of the cities.

capital to be used in business, and when there was, the prohibition could be evaded by many devices, some of which were indeed sanctioned by the Church itself. And though St Chrysostom said that "he who procures an article to make profit by disposing of it entire and unaltered, is ejected from the temple of God," yet the Church encouraged merchants to buy and sell goods unaltered at fairs and elsewhere. The authority of Church and State and the prejudices of the people combined to persecute all "retailers and regrators." But though much of the business of these people was legitimate trade, some of it was certainly analogous to the "rings" and "corners" in modern produce markets.

time ruled by its towns, one of which indeed, of Roman descent, with Roman ambition and hard fixity of purpose held its water-ways against all attack till quite modern times. And in the Netherlands and other parts of the Continent the free towns were long able to defy the hostility of kings and barons around them. But at length stable monarchies were established in Austria, Spain and France. A despotic monarchy, served by a few able men, drilled and organized the military forces of vast multitudes of ignorant but sturdy country folk; and the enterprise of the free towns, their noble combination of industry and culture, was cut short before they had had time to outgrow their early mistakes.

But the hopes of progress were again raised by the invention of printing, the Reformation, and the discovery of the New World.

Then the world might have gone backwards if it had not happened that just at that time new forces were rising to break up the bonds of constraint and spread freedom over the broad land. Within a very short period came the invention of printing, the Revival of Learning, the Reformation, and the discovery of the ocean routes to the New World and to India. Any one of these events alone would have been sufficient to make an epoch in history; but coming together as they did, and working all in the same direction, they effected a complete revolution.

Thought became comparatively free, and knowledge ceased to be altogether inaccessible to the people. The free temper of the Greeks revived; the strong self-determining spirits gained new strength, and were able to extend their influence over others. A new continent suggested new problems to the thoughtful at the same time that it offered a new scope to the enterprise of bold adventurers.

The first benefit of the maritime discoveries went to the Spanish peninsula.

§ 9. The countries which took the lead in the new maritime adventure were those of the Spanish Peninsula. It seemed for a time as though the leadership of the world having settled first in the most easterly peninsula of the Mediterranean, and thence moved to the middle peninsula, would settle again in that westerly peninsula which belonged both to the Mediterranean and the Atlantic. But the power of industry had by this time become sufficient to sustain wealth and civilization in a northern climate. And the Spanish and

Portuguese could not hold their own for long against the more sustained energy and the more generous spirit of the northern people; the colonists of England, Holland, and even France demanded and obtained far more freedom than those of Spain and Portugal.

But soon moved further on, to Holland;

The early history of the people of the Netherlands is indeed a brilliant romance. Founding themselves on fishing and weaving, they built up a noble fabric of Art and Literature, of Science and Government. But Spain set herself to crush out the rising spirit of freedom, as Persia had done before. And as Persia strangled Ionia, but only raised yet higher the spirit of the Peloponnesus: so the Austro-Spanish Empire subdued the Belgian Netherlands, but only roused the patriotism and energy of the Dutch Netherlands and England.

Holland suffered from England's jealousy of her commerce, but still more from the restless military ambition of France. It soon became clear that Holland was defending the freedom of Europe against French aggression. But our Stuart Kings sold their country for French gold; and it was not till 1688 that England awoke from the slumber of a Circean degradation, barely in time to save Holland from destruction; when her bravest and most generous sons had already perished on the battle-field and she was overburdened with debt. She has fallen into the background: but Englishmen above all others are bound to acknowledge what she did, and what more she might have done for freedom and enterprise.

to France:

France and England were thus left to contend for the empire of the Ocean. France had greater natural resources than any other northern country, and more of the spirit of the new age than any southern country; and she was for some time the greatest power of the world. But she squandered in perpetual wars her wealth and the blood of the best of those citizens whom she had not already driven away by religious persecution. The progress of enlightenment brought with it no generosity on the part of the ruling class towards the ruled, and no wisdom in expenditure.

From revolutionary America came the chief impulse towards a rising of the oppressed French people against their

rulers. But the French were strikingly wanting in that self-controlling freedom which had distinguished the American colonists. Their energy and courage was manifested again in the great Napoleonic wars. But their ambition overleaped itself, and ultimately left to England the leadership of enterprise on the Ocean. Thus the industrial problems of the New World are being worked out under the direct influence, as to some extent those of the Old World are under the indirect influence, of the English character. We may then return to trace with somewhat more detail the growth of free enterprise in England.

and to England.

CHAPTER III.

THE GROWTH OF FREE INDUSTRY AND ENTERPRISE CONTINUED.

The character of Englishmen.

§ 1. ENGLAND'S geographical position caused her to be peopled by the strongest members of the strongest races of northern Europe; a process of natural selection brought to her shores those members of each successive migratory wave who were most daring and self-reliant. Her climate is better adapted to sustain energy than any other in the northern hemisphere. She is divided by no high hills, and no part of her territory is more than twenty miles from navigable water, and thus there was no material hindrance to freedom of intercourse between her different parts; while the strength and wise policy of the Norman and Plantagenet kings prevented artificial barriers from being raised by local magnates.

As the part which Rome played in history is chiefly due to her having combined the military strength of a great empire with the enterprise and fixedness of purpose of an oligarchy residing in one city, so England owes her greatness to her combining, as Holland had done on a smaller scale before, much of the free temper of the mediæval city with the strength and broad basis of a nation. The cities of England had been less distinguished than those of other lands; but she assimilated her towns more easily than any other country did, and so gained in the long run most from them.

The custom of primogeniture inclined the younger sons of noble families to seek their own fortunes; and having no special caste privileges they mixed readily with the common people. This fusion of different ranks tended to make politics business-like; while it warmed the veins of business ad-

venture with the generous daring and romantic aspirations of noble blood. Resolute on the one hand in resistance to tyranny, and on the other in submission to authority when it is justified by their reason, the English have made many revolutions; but none without a definite purpose. While reforming the constitution they have abided by the law: they alone, unless we except the Dutch, have known how to combine order and freedom; they alone have united a thorough reverence for the past with the power of living for the future rather than in the past. But the strength of character which in later times made England the leader of manufacturing progress, showed itself at first chiefly in politics, in war, and in agriculture.

While they were still an agricultural nation they showed signs of their modern faculty for organized action.

The English yeoman archer was the forerunner of the English artisan. He had the same pride in the superiority of his food and his physique over those of his Continental rivals; he had the same indomitable perseverance in acquiring perfect command over the use of his hands, the same free independence and the same power of self-control and of rising to emergencies; the same habit of indulging his humours when the occasion was fit, but, when a crisis arose, of preserving discipline even in the face of hardship and misfortune[1].

But the industrial faculties of Englishmen remained latent for a long time. They had not inherited much acquaintance with nor much care for the comforts and luxuries of civilization. In manufactures of all kinds they lagged behind the Latin countries, Italy, France and Spain, as well as the free cities of northern Europe. Gradually the wealthier classes got some taste for imported luxuries, and England's trade slowly increased.

Their trade has been a consequence of their activity in production and in navigation.

But there was for a long time no sign on the surface of her future commerce. That indeed is the product of her special circumstances as much as, if not more than of any natural bias of her people. They had not originally, and they have not now, that special liking for dealing and bargaining, nor for the

[1] For the purposes of statistical comparison the well-to-do yeoman must be ranked with the middle classes of to-day, not with the artisans: for those who were better off than he were very few in number; while the great mass of the people were very far below him, and were, even in the prosperous fifteenth century, much worse off in almost every respect than they are now.

more abstract side of financial business, which is found among the Jews, the Italians, the Greeks and the Armenians; trade with them has always taken the form of action rather than of manœuvring and speculative combination. Even now the subtlest financial speculation on the London Stock Exchange is done chiefly by those races which have inherited the same aptitude for trading which the English have for action.

The capitalist organization of agriculture pioneered the way for that of manufacture.

The qualities which have caused England in later times under different circumstances to explore the world, and to make goods and carry them for other countries, caused her even in the middle ages to pioneer the modern organization of agriculture, and thus to set the model after which most other modern business is being moulded. She took the lead in converting labour dues into money payments, a change which much increased the power of every one to steer his course in life according to his own free choice. For good or for evil the people were set free to exchange away their rights in the land and their obligations to it. The relaxation of the bonds of custom was hastened alike by the great rise of real wages which followed the Black Death in the fourteenth century; and by the great fall of real wages which was caused in the sixteenth century by the depreciation of silver, the debasement of coin, the displacement of the people from the land for the sake of sheep farming, and the appropriation of the revenues of the monasteries to the purposes of court extravagance. The movement was further extended by the growth of the royal power in the hands of the Tudors, which put an end to private war, and rendered useless the bands of retainers whom the barons and landed gentry had kept together by allowing them small holdings to cultivate. The habit of leaving real property to the eldest son, and distributing personal property among all the members of the family, on the one hand increased the size of landed properties, and on the other narrowed the capital which the owners had for working it themselves[1]. These causes tended to esta-

[1] Mr Rogers says that in the thirteenth century the value of arable land was only a third of the capital required to work it; and he believes that so long as the owner of the land was in the habit of cultivating it himself, the eldest son often

blish the relation of landlord and tenant in England: while the foreign demand for English work and the English demand for foreign luxuries led, especially in the sixteenth century, to the concentration of many holdings into large sheep-runs worked by capitalist farmers. That is, there was a great increase in the number of farmers who undertook the management and the risks of agriculture, supplying some capital of their own, but borrowing the land for a definite yearly payment, and hiring labour for wages: in like manner as, later on, the new order of English business men undertook the management and the risks of manufacture, supplying some capital of their own but borrowing the rest on interest and hiring labour for wages. Thus the English large farm was the forerunner of the English factory, in the same way as English archery was the forerunner of the skill of the English artisan.

England's industry was much influenced by the spirit of the Reformation,

§ 2. Meanwhile the English character was deepening. The natural gravity and intrepidity of the stern races that had settled on the shores of England inclined them to embrace the doctrines of the Reformation; and these reacted on their habits of life, and gave a tone to their industry. Man was, as it were, ushered straight into the presence of his Creator, with no human intermediary: life became intense and full of awe; and now for the first time large numbers of rude and uncultured people yearned towards the mysteries of absolute spiritual freedom. The isolation of each person's religious responsibility from that of his fellows, rightly understood, was a necessary condition for the highest spiritual progress[1]; but the notion was new to the world, it was bare and naked, not yet overgrown with pleasant instincts. Even kindly natures exaggerated the sharpness of outline which it must needs give to individuality, while the coarser natures

used various devices for alienating a part of his land to his younger brothers in exchange for some of their capital. *Six Centuries of Work and Wages*, pp. 51, 2.

[1] The Reformation "was the affirmation...of Individuality....Individuality is not the sum of life, but it is an essential part of life in every region of our nature and our work, in our work for the part and for the whole. It is true, though it is not the whole truth, that we must live and die alone, alone with God." Canon Westcott's *Social Aspects of Christianity*, p. 121. Comp. also Hegel's *Philosophy of History*, part IV. section iii. ch. 2.

became self-conscious and egotistic. Their eagerness to give logical definiteness and precision to their religious creed occupied their minds, and disinclined them to lighter thoughts and lighter amusements. When occasion arose they could take combined action, which was made irresistible by their resolute will. But they took little joy in society; they shunned public amusements, and preferred the quieter relaxations of home life; and, it must be confessed, some of them took an attitude hostile to art[1].

which supplied the strength necessary for the next stage of social life.

The first growth of strength had then something in it that was rude and ill-mannered; but that strength was required for the next stage upwards. Individualism had to be purified and softened by much tribulation; it had to become less self-assertive without becoming weaker, before new instincts could grow up around it to revive in a higher form what was most beautiful and most solid in the old collective tendencies. Individualism governed by the temper of the Reformed religion intensified family life, making it deeper and purer, and holier than it had ever been before. It is true that even the highest elements of our nature can be used wrongly, that an exclusive devotion to family cares has evils of its own. Nevertheless the family affections of those races which have adopted the Reformed religion are the richest and fullest of earthly feelings: there never has been before any material of texture at once so strong and so fine, with which to build up a noble fabric of social life.

Holland and other countries shared with England the great ordeal which was thus opened by the spiritual upheaval that closed the middle ages. But from many points of view, and especially from that of the economist, England's experiences were the most instructive and the most thorough; and

[1] The licentiousness of some forms of art created in serious but narrow minds a prejudice against all art; and in revenge socialists now rail at the Reformation as having injured both the social and the artistic instincts of man. But it may be questioned whether the intense feelings which were engendered by the Reformation have not enriched art more than their austerity has injured it. They have developed a literature and a music of their own; and if they have led man to think slightingly of the beauty of the works of his own hands, they have certainly increased his power of appreciating the beauties of nature. It is no accident that landscape painting owes most to lands in which the Reformed religion has prevailed.

were typical of all the rest. England led the way in the modern evolution of industry and enterprise by free and self-determining energy and will.

The economic influence of the Reformation on England was intensified through her attracting refugee artisans from the Continent.

§ 3. The effects of the Reformation on England's industrial and commercial character were intensified by the fact that many of those who had adopted the new doctrines in other countries sought on her shores a safe asylum from religious persecution. By a sort of natural selection, those of the French and Flemings, and others whose character was most akin to the English, and who had been led by that character to sturdy thoroughness of work in the manufacturing arts, came to mingle with them, and to teach them those arts for which their character had all along fitted them[1]. During the seventeenth and eighteenth centuries, the court and the upper classes remained more or less frivolous and licentious; but the middle class and some parts of the working class tended increasingly to a severe view of life, with little delight in amusements that interrupted work, and with a high standard as to those material comforts which could be obtained only by unremitting, hard work. They strove to produce things that had a solid and lasting utility, rather than those suited only for the purpose of festivities and ostentation. The tendency, when once it had set in, was promoted by the climate, for though not very severe it is specially unsuited to the lighter amusements; and the clothing, houseroom and other requisites for a comfortable existence in it, are of a specially expensive character.

It gave a sombre tone to her amusements, and this reacted on her industries.

These were the conditions under which the modern industrial life of England was developed: the desire for material comforts tends towards a ceaseless straining to extract from every week the greatest amount of work that can be got out of it. The firm resolution to submit every action to the deliberate judgment of the reason tends to make every one constantly ask himself whether he could not improve his position by changing his business, or by changing his method of doing it. And, lastly, complete political freedom and security enables every one to adjust his conduct as he has decided

[1] Dr Smiles has shown that the debt which England owes to these immigrants is greater than historians have supposed, though they have always rated it highly.

that it is his interest to do, and fearlessly to commit his person and his property to new and distant undertakings.

In short, the same causes which have enabled England and her colonies to set the tone of modern politics, have made them also set the tone of modern business. The same qualities which gave them political freedom gave them also free enterprise in industry and commerce[1].

English free enterprise naturally tended towards division of labour,

§ 4. Freedom of industry and enterprise leads everyone to seek that employment of his labour and capital in which he can turn them to best advantage, and the chief advantage which he has in view is generally, though not always, the increase of his own income. From this results a complex industrial organization, with much subtle division of labour.

Some sort of division of labour is indeed sure to grow up in any civilization that has held together for a long while, however primitive its form. Even in very backward countries we find highly specialized trades; but we do not find the work within each trade so divided up that the planning and arrangement of the business, its management and its risks, are borne by one set of people, while the manual work required for it is done by hired labour. This form of division of labour is at once characteristic of the modern world generally, and of the English race in particular. It may be merely a passing phase in man's development; it may be swept away by the further growth of that free enterprise which has called it into existence. But for the present it stands out for good or for evil as the chief fact in the form of modern civilization, the kernel of the modern economic problem.

especially in the matter of undertaking and

The most vital changes hitherto introduced into industrial life centre around this growth of business UNDERTAKERS[2]. We have already seen how the undertaker made his appearance

[1] Mr Rogers argues with great force (*Six Centuries of Work and Wages*, ch. 1) that the early commutation of personal for money dues was the chief cause of what is most characteristic in England's political history. And certainly her political and industrial institutions not only were common products of the same national character, but also have acted and reacted powerfully on one another.

[2] This term, which has the authority of Adam Smith and is habitually used on the Continent, seems to be the best to express those who take the risks and the management of business as their share in the work of organized industry.

managing business,

at an early stage in England's agriculture. The farmer borrowed land from his landlord, and hired the necessary labour, being himself responsible for the management and risks of the business. The selection of farmers has not indeed been governed by perfectly free competition, but has been restricted to a certain extent by inheritance and by other influences, which have often caused the leadership of agricultural industry to fall into the hands of people who have had no special talents for it. But England is the only country in which any considerable play has been given to natural selection: the agricultural systems of the Continent have allowed the accident of birth to determine the part which every man should take in cultivating land or controlling its cultivation. The greater energy and elasticity obtained by even this narrow play of selection in England, has been sufficient to put English agriculture in advance of all others, and has enabled it to obtain a much larger produce than is got by an equal amount of labour from similar soils in any other country of Europe[1].

and the localization of industry.

But the natural selection of the fittest to undertake, to organize, and to manage has much greater scope in manufacture. The tendency to the growth of undertakers in manufactures had set in before the great development of England's foreign trade; in fact traces of it are to be found in the woollen manufacture in the fifteenth century[2]. But the opening up of large markets in new countries gave a great stimulus to the movement, both directly and through its influence on the localization of industry, that is, the concentration of particular branches of production in certain localities.

[1] In the latter half of the eighteenth century, especially, the improvements in agriculture moved very fast. Implements of all kinds were improved, draining was carried out on scientific principles, the breeding of farm animals was revolutionized by Bakewell's genius; turnips, clover, rye-grass, &c. came into general use, and enabled the plan of refreshing land by letting it lie fallow to be superseded by that of "alternating husbandry." These and other changes constantly increased the capital required for the cultivation of land; while the growth of fortunes made in trade increased the number of those who were able and willing to purchase their way into country society by buying large properties. And thus in every way the modern commercial spirit spread in agriculture.

[2] Comp. Ochenkowski, *Englands wirthschaftliche Entwickelung*, p. 112.

The records of mediæval fairs and wandering merchants show that there were many things each of which was made in only one or two places, and thence distributed north and south, east and west, over the whole of Europe. But the wares whose production was localized and which travelled far, were almost always of high price and small bulk: the cheaper and heavier goods were supplied by each district for itself. In the colonies of the new world, however, people had not always the leisure to provide manufactures for themselves: and they were often not allowed to make even those which they could have made; for though England's treatment of her colonies was more liberal than that of any other country, she thought that the expense which she incurred on their behalf justified her in compelling them to buy nearly all kinds of manufactures from herself. There was also a large demand for simple goods to be sold in India and to savage races.

These tendencies were much promoted by the growth of consumers beyond the seas, who wanted large quantities of goods of simple patterns.

These causes led to the localization of much of the heavier manufacturing work. In work which requires the highly trained skill and delicate fancy of the operative, organization is sometimes of secondary importance. But the power of organizing great numbers of people gives an irresistible advantage when there is a demand for whole ship cargoes of goods of a few simple patterns. Thus localization and the growth of the system of capitalist undertakers were two parallel movements, due to the same general cause, and each of them promoting the advance of the other.

The factory system and the use of expensive appliances in manufacture, came at a later stage. They are commonly supposed to be the origin of the power which undertakers wield in English industry; and no doubt they increased it. But it had shown itself clearly before their influence was felt. At the time of the French Revolution there was not a very great deal of capital invested in machinery whether driven by water or steam power; the factories were not large, and there were not many of them. But nearly all the textile work of the country was then done on a system of contracts. This industry was controlled by a comparatively small number of undertakers who set themselves to find out what, where and when it was most advan-

The undertakers at first merely organized supply without supervising industry: that was still done by small masters.

tageous to buy and to sell, and what things it was most profitable to have made. They then let out contracts for making these things to a great number of people scattered over the country. The undertakers generally supplied the raw material, and sometimes even the simple implements that were used; those who took the contract executed it by the labour of themselves and their families, and sometimes but not always by that of a few assistants. As time went on, the progress of mechanical invention caused the workers to be gathered more and more into factories in the neighbourhood of water power; and when steam came to be substituted for water power, then into larger factories in great towns. This last movement was not liable to be overlooked as the preceding movement was by those who were not actually engaged in the trade[1].

But gradually the undertakers collected into their own factories large bodies of workers; and it became evident to every one that the

Thus at length general attention was called to the great change in the organization of industry which had long been going on; and it was seen that the system of small businesses controlled by the workers themselves was being displaced by the system of large businesses controlled by the specialized ability of capitalist undertakers. The change would have worked itself out very much as it has done, even if there had been no factories: and it will go on working itself out

[1] The quarter of a century beginning with 1760 saw improvements follow one another in manufacture even more rapidly than in agriculture. During that period the transport of heavy goods was cheapened by Brindley's canals, the production of power by Watt's steam-engine, and that of iron by Cort's processes of puddling and rolling, and by Roebuck's method of smelting it by coal in lieu of the charcoal that had now become scarce; Hargreaves, Crompton, Arkwright, Cartwright and others invented, or at least made economically serviceable, the spinning jenny, the mule, the carding machine, and the power-loom; Wedgwood gave a great impetus to the pottery trade that was already growing rapidly; and there were important inventions in printing from cylinders, in bleaching by chemical agents, and in other processes. A cotton factory was for the first time driven directly by steam-power in 1785, the last year of the period. The beginning of the nineteenth century saw steam-ships and steam printing-presses, and the use of gas for lighting towns. Railway locomotion, telegraphy and photography came a little later. Our own age has seen numberless improvements and new economies in production, prominent among which are those relating to the production of steel, the telephone, the electric light, and the gas-engine; and the social changes arising from material progress are in some respects more rapid now than ever. But the groundwork of the changes that have happened since 1785 was chiefly laid in the inventions of the years 1760 to 1785.

even if the retail distribution of force by electric or other agencies should cause part of the work that is now done in factories to be taken to the homes of the workers[1].

old order was passing away.

§ 5. In consequence of this change the causes that determine the value of labour are taking a new character. Up to the eighteenth century manufacturing labour had been hired, as it were, always retail; in that century it began to be hired wholesale. Up to that time its price had been in the main either nominally fixed by custom, or determined by the incidents of bargaining in very small markets: the bargaining had been sometimes for the hire of labour, sometimes for the sale of its products, the workman having himself undertaken the risks of production. But since then its price has more and more been determined by the circumstances of supply and demand over a large area—a town, a country, or the whole world.

Henceforth manufacturing labour was sold wholesale.

The new organization of industry added vastly to the efficiency of production; for it went far towards securing that each man's labour should be devoted to just the highest kind of work which he was capable of performing well, and that his work should be ably directed and supplied with the best mechanical and other assistance that wealth and the knowledge of the age could afford. But it brought with it great evils. Which of these evils was unavoidable we cannot tell. For just when the change was moving most quickly, England was stricken by a combination of calamities almost unparalleled in history. They were the cause of a great part—it is impossible to say of how great a part—of the sufferings that are commonly ascribed to the sudden outbreak of unrestrained competition. The loss of her great colonies was quickly followed by the great French war, which cost her more than the total value of the accumulated wealth she had at its commencement. An unprecedented series of bad harvests made bread fearfully dear. And worse than all, a method of administration of the poor law was adopted which undermined the independence and vigour of the people.

The new organization increased production, but was accompanied by great evils; many of which were however due to other causes.

[1] See Held's *Sociale Geschichte Englands*, Bk. II. ch. III. Compare also Mr Carroll D. Wright's vigorous defence of the Factory system in Vol. II. of the *U. S. Census for* 1860.

The first part of this century therefore saw free enterprise establishing itself in England under unfavourable circumstances, its evils being exaggerated, and its benefits being suppressed by external misfortunes.

There were some futile attempts to revive old ordinances regulating labour,

§ 6. The trade customs and the gild regulations by which the weak had been defended in past times, were unsuitable to the new industry. In some places they were abandoned by common consent: in others they were successfully upheld for a time. But it was a fatal success; for the new industry, incapable of flourishing under the old bonds, left those places for others where it could be more free[1]. Then the workers turned to Government for the enforcement of old laws of Parliament prescribing the way in which the trade should be carried on, and even for the revival of the regulation of prices and wages by justices of the peace.

which had done both good and evil in their time,

These efforts could not but fail. The old regulations had been the expression of the social, moral and economic ideas of the time; they had been felt out rather than thought out; they were the almost instinctive result of the experience of generations of men who had lived and died under almost unchanged economic conditions. In the new age changes came so rapidly that there was no time for this. Each man had to do what was right in his own eyes, with but little guidance from the experience of past times; those who endeavoured to cling to old traditions were quickly supplanted.

but were unfitted for the modern era of rapid change.

The manufacturers were chiefly strong self-made men, who saw only the good side of competition.

The new race of undertakers consisted chiefly of those who had made their own fortunes, strong, ready, enterprising men: who, looking at the success obtained by their own energies, were apt to assume that the poor and the weak were to be blamed rather than to be pitied for their misfortunes. Impressed with the folly of those who tried to bolster up economic arrangements which the stream of progress had undermined, they were apt to think that nothing more was wanted than to make competition perfectly free and to let the strongest have their way. They glorified

[1] The tendency of industries to flee away from places where they were over-regulated by the gilds was of old standing, and had shown itself in the thirteenth century, though it was then comparatively feeble. See Ochenkowski, l.c. p. 53.

individualism, and were in no hurry to find a modern substitute for the social and industrial bonds which had kept men together in earlier times.

The pressure of war taxes and the scarcity of food forced down real wages,

Meanwhile misfortune had reduced the total net income of the people of England. In 1820 a tenth of it was absorbed in paying the mere interest on the National Debt. The goods that were cheapened by the new inventions were chiefly manufactured commodities of which the working man was but a small consumer. As England then had almost a monopoly of manufactures, he might indeed have got his food cheaply if manufacturers had been allowed to change their wares freely for corn grown abroad. But this was prohibited in the interests of the landlords who ruled in Parliament. The labourer's wages, so far as they were spent on ordinary food, were the equivalent of what his labour would produce on the very poor soil which was forced into cultivation to eke out the insufficient supplies raised from the richer grounds. He had to sell his labour in a market in which the forces of supply and demand would have given him a poor pittance even if they had worked freely. But he had not the full advantage of economic freedom; he had no efficient union with his fellows; he had neither the knowledge of the market, nor the power of holding out for a reserve price, which the seller of commodities has.

It is true, as we shall see presently, that this want did not make a very great difference to his wages directly; for the competition among employers was sufficiently real in manufacture, if not in agriculture, to cause them to bid against one another for any labourer whose wages were less than the net value of what he produced. But the pressure of want caused the workman to consent to excessive hours and unhealthy conditions of work for himself and his wife and children. This kept down the efficiency of the working population, and therefore the net value of their work, and therefore their wages. The moral and physical misery and disease of the factory population in the first quarter of the century is terrible to think of.

and induced unhealthy and excessive work, which lowered the wage-earning power.

But after the yearly attempts of the workmen to revive the old rules regulating industry had failed, there was no

But the new system had saved

England from French armies, and the workmen accepted it, and strove to develop their freedom in it.

longer any wish to curtail the freedom of enterprise. The sufferings of the English people at their worst were never comparable to those which had been caused by the want of freedom in France before the Revolution; and it was argued that, had it not been for the strength which England derived from her new industries, she would probably have succumbed to a foreign military despotism, as the free cities had done before her. Small as her population was she at some times bore almost alone the burden of war against a conqueror in control of nearly all the resources of the continent; and at other times subsidized larger, but poorer countries in the struggle against him. Rightly or wrongly, it was thought at the time that Europe might have fallen permanently under the dominion of France, as she had fallen in an earlier age under that of Rome, had not the free energy of English industries supplied the sinews of war against the common foe. Little was therefore heard in complaint against the excess of free enterprise, but much against that limitation of it which prevented Englishmen from obtaining food from abroad in return for the manufactures which they could now so easily produce. The trades unions, which were rapidly growing in strength and knowledge, were beginning to see the folly of attempting to enforce the old rules by which government had directed the course of industry; and they had as yet got no far reaching views as to the regulation of trade by their own action: their chief anxiety was to increase their own economic freedom by the removal of the laws against combinations of workmen.

They could not see, as we can, how great are the evils of economic freedom when it degenerates into license.

§ 7. It has been left for our own half-century to understand fully the extent of the evils which arose from this sudden and violent increase of economic freedom. Now first are we getting to understand the extent to which the capitalist employer, untrained to his new duties, was tempted to subordinate the wellbeing of his workpeople to his own desire for gain; now first are we learning the importance of insisting that the rich have duties as well as rights in their individual and in their collective capacity; now first is the economic problem of the new age showing itself to

ns as it really is. This is partly due to a wider knowledge and a growing earnestness. But however wise and virtuous our grandfathers had been, they could not have seen things as we do; for they were hurried along by urgent necessities and terrible disasters.

Loss of national wealth was then equivalent to loss of lives.

In times of peace no one ventures openly to rank money as of high importance in comparison with human lives; but in the crisis of an expensive war money can always be used so as to save them. No general when hard pushed hesitates to sacrifice lives in order to protect his material, because the loss of it would be likely to cause the loss of many men; but no one would openly defend a sacrifice of soldiers' lives in order to save a few army stores in time of peace. And therefore in judging the action of our forefathers at the beginning of this century we must always remember that in their time every check to the production of wealth was likely to cause a loss of life to English soldiers, and increased the risk of their losing that national liberty which was dearer than life. Even when the war was over, the destruction of wealth which it had caused, though partially disguised by an artificial inflation of prices, rendered it very difficult for them to rate material wealth as low as it should be rated in comparison with the health and happiness and education of human beings.

But we must judge ourselves by a severer standard. For we are not now struggling for national existence; and our resources have not been exhausted by great wars: on the contrary our powers of production have been immensely increased; and, what is at least as important, the repeal of the Corn Laws and the growth of steam communication have enabled a largely increased population to obtain sufficient supplies of food on easy terms. The average money income of the people has more than doubled; while the price of almost all important commodities except animal food and houseroom has fallen by one half or even further. It is true that even now, if wealth were distributed equally, the total production of the country would only suffice to provide necessaries and the more urgent comforts for the people[1], and

As the century wore on the nation became richer, and was no longer compelled to sacrifice everything to increased production.

[1] The average increase per head in the United Kingdom which was about £15

that as things are, many have barely the necessaries of life. But the nation has grown in wealth, in health, in education and in morality; and we are no longer compelled to subordinate almost every other consideration to the need of increasing the total produce of industry.

The new restraints on freedom are chiefly in the interests of women and children.

In particular during the present generation this increased prosperity has made us rich and strong enough to impose new restraints on free enterprise; some temporary material loss being submitted to for the sake of a higher and greater ultimate gain. But these new restraints are different from the old. They are imposed not as a means of class domination; but with the purpose of defending the weak, and especially women and children in matters in which they are not able to use the forces of competition in their own defence. The aim is to devise, deliberately and promptly, remedies adapted to the quickly changing circumstances of modern industry; and thus to obtain the good, without the evil, of the old defence of the weak that in other ages was gradually evolved by custom.

The telegraph and printing press enable the people now to decide on their own remedies for their evils.

Even when industry remained almost unchanged in character for many generations together, custom was too slow in its growth and too blind to be able to apply pressure only when pressure was beneficial: and in this later stage custom can do but little good, and much harm. But by the aid of the telegraph and the printing press, of representative government and trade associations, it is possible for the people to think out for themselves the solution of their own problems. The growth of knowledge and self-reliance has given them that true self-controlling freedom, which enables them to impose of their own free will restraints on their own actions; and the problems of collective production, collective ownership and collective consumption are entering on a new phase.

And we are gradually moving

Projects for great and sudden changes are now, as ever, fore-doomed to fail, and to cause reaction. We are still

in 1820 is about £33 now; i. e. it has risen from about £75 to £165 per family of five. There are not a few artisan's families, the total earnings of which exceed £165, so that they would lose by an equal distribution of wealth: but even they have not more than is required to support a healthy and many-sided life.

unable to move safely, if we move so fast that our new plans of life altogether outrun our instincts. It is true that human nature can be modified; new ideals, new opportunities and new methods of action may, as history shows, alter it very much even in a few generations. This change in human nature has perhaps never covered so wide an area and moved so fast as in the present generation. But still it is a growth and therefore gradual; and changes of our social organization must wait on it, and therefore they must be gradual too.

towards forms of collectivism which will be higher than the old, because they will be based on strong self-disciplined individuality.

But though they wait on it, they may always keep a little in advance of it, promoting the growth of our higher social nature by giving it always some new and higher work to do, some practical ideal towards which to strive. Thus gradually we may attain to an order of social life, in which the common good overrules individual caprice, as completely as it did in the early ages before individualism had been developed. But unselfishness then will be the offspring of deliberate will, though aided by instinct; individual freedom will then develop itself in collective freedom, instead of, as was the case in the old times, individual slavery to custom causing collective slavery and stagnation, broken only by the caprice of despotism or the caprice of revolution.

§ 8. We have been looking at this movement from the English point of view. But other nations are taking their share in it. In America and other new countries, growth has been so rapid, and migration of the people so unceasing as to hinder the careful thinking out of the problems of social economy. But America faces new practical difficulties with such intrepidity and directness that she is already contesting with England the leadership in economic affairs; and she will probably before long take the chief part in pioneering the way for the rest of the world. Already she supplies many of the most instructive instances of the latest economic tendencies of the age, such as the growing democracy of trade and industry, the development of speculation and trade combination in every form.

America is throwing much light on certain economic problems.

On the Continent the power of obtaining important results by free association is less than in English speaking

countries; and in consequence there is less resource and less thoroughness in dealing with industrial problems. But their treatment is not quite the same in any two nations: and there is something characteristic and instructive in the methods adopted by each of them; particularly in relation to the sphere of governmental action. In this matter Germany is taking the lead. It has been a great gain to her that her manufacturing industries developed later than those of England; and she has been able to profit by England's experience and to avoid many of her mistakes[1].

while Germany has special facilities for experimenting in the management of business by the government for the people.

In Germany an exceptionally large part of the best intellect in the nation seeks for employment under government, and there is probably no other government which contains within itself so much trained ability of the highest order. On the other hand the energy, the originality and the daring which make the best men of business in England and America have not yet been fully developed in Germany; while the German people have a great faculty of obedience. They are thus in strong contrast to the English whose strength of will makes them capable of thorough discipline when they see the necessity for it, but who are not naturally docile. The control of industry by Government is seen in its best and most attractive forms in Germany; and at the same time the special virtues of private industry, its vigour, its elasticity and its resource are not seen to their best advantage there. In consequence the problems of the economic functions of government have been studied in Germany with greater care, and with a bias that may be a healthy corrective to the bias in the opposite direction of the English speaking countries.

And Germany contains a larger number than any other country of the most cultivated members of that wonderful race who have been leaders of the world in intensity of religious feeling and in keenness of business speculation.

[1] List worked out with much suggestiveness the notion that a backward nation must learn its lessons not from the contemporary conduct of more forward nations, but from their conduct when they were in the same state in which it is now. But, as Knies well shows (*Politische Œkonomie*, II. 5), the growth of trade and the improvement of the means of communication are making the developments of different nations tend to synchronize.

In every country, but especially in Germany, much of what is most brilliant and suggestive in economic practice and in economic thought is of Jewish origin. And in particular to German Jews we owe the most daring speculations as to the conflict of interests between the individual and society, and as to their ultimate economic causes and their possible socialistic remedies.

But we are trenching on the subject of the next chapter. In this and the previous chapter we have seen how recent is the growth of economic freedom, and how new is the substance of the problem with which economic science has now to deal; in the next chapter we have to inquire how the form of that problem has been fashioned by the progress of events and the personal peculiarities of great thinkers.

CHAPTER IV.

THE GROWTH OF ECONOMIC SCIENCE.

Modern economic science owes much to ancient thought indirectly, but little directly.

§ 1. WE have seen how economic freedom has its roots in the past, but is in the main a product of quite recent times; we have next to trace the parallel growth of economic science. The social conditions of the present day have been developed from early Aryan and Semitic institutions by the aid of Greek thought and Roman law; but modern economic speculations have been very little under the direct influence of the theories of the ancients. Thinkers who had not learnt to break up the problems of physics, and work out one part of them at a time, were not likely to engage in the more difficult and less obvious task of breaking up social questions and dealing first with one order of difficulties and then with another. The Greeks and Romans would not therefore have made very great progress in economics, had they given full attention to the study; but in fact they gave very little. And further, what they have written on economics is not only slight in comparison with their work in other branches of social and political philosophy, but also less applicable to the conditions of modern times.

It is true that modern economics had its origin in common with other sciences at the time when the study of classic writers was reviving. But an industrial system which was based on slavery, a philosophy which regarded manufacture and commerce with contempt, had little that was congenial to the hardy burghers who were as proud of their handicrafts and their trade, as they were of their share in governing the State. These strong but uncultured

men might have gained much from the philosophic temper and the broad interests of the great thinkers of past times. But, as it was, they set themselves to work out their own problems for themselves; and modern economics had at its origin a certain rudeness and limitation of scope, and a bias towards regarding wealth as an end rather than a means of man's life.

The study of economics was stimulated by the discovery of the mines and the trade-routes of the New World.

In all ages, but especially in the early middle ages, statesmen and merchants had busied themselves with endeavours to enrich the State by artificial regulations of trade. The centre of their concern had been to secure an abundant supply of the precious metals, which they thought the best indication if not the chief cause of material prosperity whether of the individual or the nation[1]. But the voyages of Vasco de Gama and Columbus raised commercial questions from a secondary to a dominating position among the nations of Western Europe. Theories with regard to the importance of the precious metals and the best means of obtaining supplies of them, became the arbiters of public policy: they dictated peace and war, they determined alliances that issued in the rise and fall of nations and they governed the migration of peoples over the face of the globe.

The early regulation of trade.

Regulations as to trade in the precious metals were but one group of a vast body of ordinances, which undertook to arrange for each individual what he should produce and how he should produce it, what he should earn and how he should spend his earnings. The natural adhesiveness of the Teutons had given custom an exceptional strength in the early middle ages. And this strength told on the side of trade gilds, of local authorities and of national governments when they set themselves to cope with the restless tendency to change that sprang directly or indirectly

[1] Much study has been given both in England and Germany to mediæval opinions as to the relation of money to national wealth. On the whole they are to be regarded as confused through want of a clear understanding of the functions of money, rather than as wrong in consequence of a deliberate assumption that the increase of the net wealth of a nation can be effected only by an increase of the stores of the precious metals in her. But there are perhaps no writers on money before the sixteenth century who did not occasionally use arguments based on this assumption.

from the trade with the New World. In France this Teutonic bias was directed by the Roman genius for system, and paternal government reached its zenith; the trade regulations of Colbert have become a proverb. It was just at this time that economic theory first took shape and the so-called Mercantile system became prominent.

The mercantile theory tended to loosen the fetters of trade,

As years went on there set in a tendency towards economic freedom, and those who were opposed to the new ideas claimed on their side the authority of the Mercantilists of a past generation. It is not therefore to be wondered at that the Mercantilists are commonly believed to have promoted the state regulation of trade and industry. But they did not. The regulations and restrictions which are found in their systems belonged to the age; the changes which they set themselves to bring about were in the direction of the freedom of enterprise. In opposition to those who wished to prohibit absolutely the exportation of the precious metals, they argued that it should be permitted in all cases in which the trade would in the long run bring more gold and silver into the country than it took out[1].

[1] The tendency to exaggerate the importance of gold and silver as elements of national wealth was carried further by their opponents than by them. Much ingenuity had been spent in devising plans for preventing traders from taking gold and silver out of the country and for inducing them to bring gold and silver in; (a graphic account of these plans is given in Richard Jones' collected works). These regulations pressed with special weight on the India Company, which wanted to import goods direct from India, but which could find no market there for English goods; and had therefore to buy with silver or not at all. Its rival, the Levant Company, received the goods in Mediterranean ports after they had borne the expense of a long journey by land, but were able to pay for them by the sale of English goods. Mun writing on behalf of the India Company argued that the superior economy of the sea routes and direct dealing would enable them to supply England's demands for Oriental goods and yet to sell their surplus on the continent for more silver than they had originally exported. He pointed to the farmers burying their seed in the earth in expectation of an increased return in the next harvest. The State which should prohibit them from doing this, on the ground that they lessened the stock of corn in the country, would, he argued, be no more foolish than the State which forbad merchants to export silver even when the ultimate result of their trade would bring more silver into the country than they had originally taken out. As the farmers enriched the country while engaged in pursuing their own gain, so would the merchants do, at all events if they were compelled to bring back in the long run as much silver as they took out. It is probable that he would have been willing to trust to the silver finding its own way back, but that he did not venture to say so. This is a good

The Mercantilists indeed did not look beyond the immediate purpose for which they were contending; they did not dream of establishing a new principle of social and political life. But by raising the question whether the State would not benefit by allowing the trader to manage his business as he liked in one particular case, they had unwittingly started a new tendency of thought; and this moved on by imperceptible steps in the direction of economic freedom, being assisted on its way by the circumstances of the time, no less than by the tone and temper of men's minds in Western Europe. A little was done here, and a little there in England and Holland, in Italy and France; the steps are difficult to trace. It is not easy to tell how much each writer owes to the suggestions of others, nor how far he himself intended the suggestions which we with our later knowledge read into his passing hints. But we know that the broadening movement did go on till, in the latter half of the eighteenth century, the time was ripe for the doctrine that the well-being of the community almost always suffers when the State attempts to oppose its own artificial regulations to the "natural" liberty of every man to manage his own affairs in his own way.

and started the movement towards economic freedom.

§ 2. The first systematic attempt to form an economic science on a broad basis was made in France about the middle of the eighteenth century by a group of statesmen and philosophers under the leadership of Quesnay, the noble-minded physician to Louis XV[1]. The corner stone of their policy was obedience to Nature.

The Physiocrats insisted that restriction is artificial and liberty is natural; and that the welfare of the common people should be the first aim of the statesman.

In the two preceding centuries the Mercantilist writers had continually appealed to Nature; each disputant claiming that his scheme was more natural than that of others, and the philosophers of the eighteenth century, some of whom exercised a great influence on economics, were wont to find the standard of right in conformity to Nature. In particular

instance of the way in which practical needs have constantly suggested the inquiries which have resulted in additions to economic science.

[1] I pass by Cantillon, to whom is generally attributed the essay *Sur la Nature de Commerce*. The author of this essay was very acute and in some respects much ahead of his time. But he seems to me wanting in solidity, and I cannot agree with Jevons in regarding him as the true founder of modern Political Economy.

Locke anticipated much of the works of the French economists in the general tone of his appeals to Nature, and in some important details of his theory. But Quesnay and the other French economists who worked with him, were drawn to the pursuit of natural laws of social life by several forces in addition to those which were at work in England.

The luxury of the French court, and the privileges of the upper classes[1] which were ruining France, showed the worst side of an artificial civilization, and made thoughtful men yearn for a return to a more natural state of society. The lawyers, among whom much of the best mental and moral strength of the country was to be found, were full of the Law of Nature which had been developed by the Stoic lawyers of the later Roman Empire, and as the century wore on, the sentimental admiration for the "natural" life of the American Indians which Rousseau had kindled into flame, began to influence the economists. Before long they were called Physiocrats or adherents of the rule of Nature[2].

They were the first to proclaim the doctrine of free trade as a broad principle of action[3]; and there was much in the tone and temper of their treatment of political and social questions which was prophetic of a later age. They fell however into a confusion of thought which was common even among scientific men in their time, but which has been

[1] It has been calculated that in 1787, while the clergy paid in taxes but a fourteenth part of their incomes, and the nobility paid a sixth of theirs, the great mass of the people paid two-thirds of theirs.

[2] Comp. De Tocqueville's *Ancien Régime* and Maine's *Ancient Law*. The name of the Physiocrats was derived from the title of Dupont de Nemour's *Physiocratie ou Constitution Naturelle du Gouvernement le plus advantageux au Genre Humain* published in 1768. It may be mentioned that their enthusiasm for agriculture and for the naturalness and simplicity of rural life was in part derived from their Stoic masters.

[3] Their favourite phrase *Laissez faire, laissez aller*, is commonly misapplied now. *Laissez faire* means that anyone should be allowed to make what things he likes, and as he likes; that all trades should be open to everybody; that Government should not, as the Colbertists insisted, prescribe to manufacturers the fashions of their cloth. *Laissez aller* (or *passer*) means that persons and goods should be allowed to travel freely from one place to another and especially from one district of France to another without being subject to tolls and taxes and vexatious regulations. It may be noticed that *laissez aller* was the signal used in the Middle Ages by the Marshals to slip the leash from the combatants at a Tournament.

banished after a long struggle from the physical sciences. They confused the ethical principle of conformity to nature, which prescribes in the imperative mood certain laws of action, with those causal laws which science discovers by interrogating Nature and which are expressed in the indicative mood. For this and other reasons their work has very little direct value. But its indirect influence on the present position of economics has been very great. For, firstly, the clearness and logical consistency of their arguments have caused them to exercise, as we shall see presently, a great influence on later thought. And, secondly, the chief motive of their study was not, as it had been with most of their predecessors, to increase the riches of merchants and fill the exchequers of Kings[1]; it was to diminish the suffering and degradation which was caused by extreme poverty. They thus gave to economics its modern aim of seeking after such knowledge as may help to raise the quality of human life.

They thus gave to economics its modern philanthropic tone, but they also greatly influenced its abstract reasonings.

§ 3. The next great step in advance, the greatest step that economics has ever taken, was the work, not of a school but of an individual. Adam Smith was not indeed the only great English economist of his time. Shortly before he wrote, important additions to economic theory had been made by Hume and Stewart, and excellent studies of economic facts had been published by Anderson and Young. But Adam Smith's breadth was sufficient to include all that was best in all his contemporaries, French and English; and though he undoubtedly borrowed much from others yet the more one compares him with those who went before and those who came after him, the more excellent does his genius appear.

Adam Smith's genius.

He resided a long time in France in personal converse with the Physiocrats; he made a careful study of the English and French philosophy of his time, and he got to know the world practically by wide travel and by intimate association with Scotch men of business. To these advantages he added unsurpassed powers of observation, judgment

[1] Even the generous Vauban (writing in 1717) had to apologize for his interest in the well-being of the people, arguing that to enrich them was the only way to enrich the king—Pauvres paysans, pauvre Royaume, pauvre Royaume, pauvre Roi.

and reasoning. The result is that wherever he differs from his predecessors, he is more nearly right than they; while there is scarcely any economic truth now known of which he did not get some glimpse. But the area which he opened up was too vast to be thoroughly surveyed by one man; and many truths of which at times he caught sight escaped from his view at other times. It is therefore possible to quote his authority in support of many errors. But on careful examination, he is always found to be working his way towards the truth[1].

He greatly developed the doctrine of free trade;

He developed the Physiocratic doctrine of Free Trade with so much practical wisdom, and with so much knowledge of the actual conditions of business, as to make it a great force in real life; and he is most widely known both here and abroad for his argument, that Government generally does harm by interfering in trade[2]. While giving many instances of the ways in which self-interest may lead the individual trader to act injuriously to the community, he showed by arguments richly illustrated by facts that even when Government acted with the best intentions, it nearly always served the public worse than the enterprise of the individual trader, however selfish he might happen to be. So great an impression did he make on the world by his defence of this doctrine that most German writers have it chiefly in view when they speak of *Smithianismus*[3].

[1] For instance, he had not quite got rid of the confusion prevalent in his time between the laws of economic science and the ethical precept of conformity to nature. "Natural" with him sometimes means that which the existing forces actually produce or tend to produce, sometimes that which his own human nature makes him wish that they should produce. In the same way, he sometimes regards it as the province of the economist to expound a science, and at others to set forth a part of the art of government. But loose as his language often is, we find on closer study that he himself knows pretty well what he is about. When he is seeking for causal laws, that is, for laws of nature in the modern use of the term, he uses scientific methods; and when he utters practical precepts he generally knows that he is only expressing his own views of what ought to be, even when he seems to claim the authority of nature for them.

[2] The substance of this passage and of several others in this and the three following chapters has already been published in the author's inaugural lecture at Cambridge on the *Present Position of Economics*.

[3] The popular use of this term in Germany implies not only that Adam Smith thought that the free play of individual interests would do more for the public weal than government interference could, but further that it almost always

but his chief work was to show how value by measuring motive affords a basis for applying scientific methods to the study of a large class of social phenomena.

But after all, this was not his chief work. His chief work was to combine and develop the speculations of his French and English contemporaries and predecessors as to value. His highest claim to have made an epoch in thought is that he was the first to make a careful and scientific inquiry into the manner in which value measures human motive[1].

Possibly the full drift of what he was doing was not seen by him, certainly it was not perceived by many of his followers. But for all that, the best economic work which came after the *Wealth of Nations* is distinguished from that which went before, by a clearer insight into the balancing and weighing, by means of money, of the desire for the possession of a thing on the one hand, and on the other of all the various efforts and self-denials which directly and indirectly contribute towards making it. Important as had been the steps that others had taken in this direction, the advance made by him was so great that he really opened out this new point of view, and by so doing made an epoch. He led us to see how below the surface of a great part of human action there are motives which can be measured; and therefore can be analyzed and subjected to the processes of scientific reasoning. He thus pointed the way to applying powerful and exact methods of study to an important part of social phenomena. And the work which he himself did, though not well arranged, is a perfect model of method so far as its substance goes. He saw that while economic science must be based on a study of facts, the facts are so complex, that they generally can teach nothing directly; they must be interpreted by careful reasoning and analysis[2].

acted in the ideally best way. But the leading German economists are well aware that he steadily insisted on the frequent opposition that there is between private interests and the public good. See for instance a long list of such conflicts quoted from the *Wealth of Nations* by Knies, *Politische Oekonomie*, Ch. III. § 3.

[1] See below Ch. VI.

[2] Hume said of the *Wealth of Nations*, that it "is so much illustrated with curious facts that it must take the public attention." This is exactly what Adam Smith did: he seldom attempted to prove anything by detailed induction or history. The data of his proofs were chiefly facts that were within everyone's knowledge, facts physical, mental and moral. But he illustrated his proofs by curious and instructive facts; he thus gave them life and force, and made his readers feel

The study of facts was carried on by Young, Eden, Malthus and others.

§ 4. None of Adam Smith's contemporaries and immediate successors had a mind as broad and well balanced as his. But they did excellent work, each giving himself up to some class of problems to which he was attracted by the natural bent of his genius, or the special events of the time in which he wrote. During the remainder of the eighteenth century the chief economic writings were historical and descriptive, and bore upon the condition of the working classes, especially in the agricultural districts. Arthur Young continued the inimitable records of his tour, Eden wrote a history of the poor which has served both as a basis and as a model for all succeeding historians of industry; while Malthus showed by a careful investigation of history what were the forces which had as a matter of fact controlled the growth of population in different countries and at different times.

But the great forming mind after Adam Smith was that of Bentham.

He was an ardent reformer,

but had an extravagant dread of insecurity.

But on the whole the most influential of the immediate successors of Adam Smith was Bentham. He wrote little on economics himself, but he set the tone of the rising school of English economists at the beginning of the nineteenth century. He was an uncompromising logician and an ardent reformer. He was an enemy of all artificial distinctions between different classes of men; he declared with emphasis that any one man's happiness was as important as any other's, and that the aim of all action should be to increase the sum total of happiness; he admitted that other things being equal this sum total would be the greater, the more equally wealth was distributed. Nevertheless so full was his mind of the terror of the French revolution, and so great were the evils which he attributed to the smallest attack on "security" that, daring analyst as he was, he felt himself and he fostered in his disciples an almost superstitious reverence for the existing institutions of private property.

His opposition to customary restrictions on trade for which no

There was yet another way in which he influenced the young economists around him. He was averse to all restrictions and regulations for which no clear reason could be given, and his pitiless demands that they should justify their

that they were dealing with problems of the real world, and not with abstractions. We shall have to return to this subject in the next chapter.

existence received support from the circumstances of the age. As we have seen, the methods of English industry were not stationary in Adam Smith's time: but since then changes had come very fast. As we have seen, gilds and customs and prejudice opposed in vain the tendency to change: if they fortified themselves irresistibly in any town, the wave of progress simply avoided that town. It started rival industries in new districts where new methods could be adopted without opposition; and left the town with its obstructive trade regulations to silent decay. England had won her unique position in the world by her quickness in adapting herself to every new economic movement. It was by their adherence to old-fashioned ways that the nations of Central Europe had been prevented from turning to account their great natural resources, leaving England to bear their share, as well as her own, of the expenses of the war with France. The business men of England were inclined then to think that the influence of custom and sentiment in business affairs was harmful, that in England at least it had diminished, was diminishing and would soon vanish away: and the disciples of Bentham were not slow to conclude that they need not concern themselves much about custom. It was enough for them to discuss the tendencies of man's action on the supposition that every one was always on the alert to find out what course would best promote his own interest, and was free and quick to follow it.

valid reason could be given was supported by the course of events, and the economists of the rising generation tended to ignore custom.

There is then some justice in the charges frequently brought against the English economists of the beginning of this century, that they neglected to inquire with sufficient care whether a greater range might not be given to collective as opposed to individual action in social and economic affairs; that they exaggerated the strength of competition and its rapidity of action: and there is some ground, though a very slight one, for the charge that their work is marred by a certain hardness of outline and even harshness of temper. These faults were partly due to Bentham's direct influence, partly to the spirit of the age of which he was an exponent. But they were partly also due to the fact that economic study had again got a good

deal into the hands of men whose strength lay in vigorous action rather than in philosophical thought.

The English economists at the beginning of the century were many of them business men, but they had a strong bias towards rapid generalization and deductive reasoning.

§ 5. Statesmen and merchants again threw themselves into problems of money and foreign trade with even more energy than they used to do when these questions were first started in the earlier period of the great economic change at the end of the Middle Ages. It might at first sight seem probable that their contact with real life, their wide experience, and their vast knowledge of facts would have led them to take a wide survey of human nature and to found their reasonings on a broad basis. But the training of practical life often leads to a too rapid generalization from personal experience.

Their work was excellent so long as they treated of money,

So long as they were well within their own province their work was excellent. The theory of currency is just that part of economic science in which but little harm is done by leaving out of account all human motives except the desire for wealth; and the brilliant school of deductive reasoning which Ricardo[1] led was here on safe ground. A small party—it is said that at one time there were not more than a score of them—propounded a theory which was opposed to the prejudices of the age and which was received with ridicule. The Directors of the Bank of England passed a resolution opposed to it: but time was on the side of

[1] He is often spoken of as a representative Englishman: but this is just what he was not. His strong constructive originality is the mark of the highest genius in all nations. But that quality by which he is distinguished from most other scientific geniuses is his aversion to inductions and his delight in abstract reasonings. And this quality is due, not to his English education, but, as Bagehot points out, to his Semitic origin. Nearly every branch of the Semitic race has had some special genius for dealing with abstractions, and several of them have had a bias towards the abstract calculations connected with the trade of money dealing, and its modern developments. There is no truly English economist whose method resembles that of Ricardo; his power of threading his way without slip through intricate paths to new and unexpected results has never been surpassed. But it is difficult even for an Englishman to follow his track; and his foreign critics have, as a rule, failed to detect the real drift and purpose of his work. Even the ablest of them frequently undertake to refute him by establishing propositions which are consistent with his and often even involved in them. For he never explains himself: he never shows what his purpose is in working first on one hypothesis and then on another, nor how by properly combining the results of his different hypotheses it is possible to cover a great variety of practical questions. See below Book VI. Ch. I. § 3.

the economists: in a few years the course of events had proved that they were right, and the Bank of England erased its former resolution from the minutes[1].

and foreign trade,

The economists next addressed themselves to the theory of foreign trade and cleared away many of the flaws which Adam Smith had left in it. There is no other part of economics except the theory of money, which so nearly falls within the range of the pure deductive method. It is true that a full discussion of a free trade policy must take account of many considerations that are not strictly economic; but most of these, though important for agricultural countries, and especially for new countries, had little bearing in the case of England. And though the cause of free trade in other countries has been injured by the narrowness of those of its English advocates, who have refused to take account of any elements of the problem which were not practically important in their own country and their own time, yet this very narrowness has given them precision, lucidity and confidence; and has been of service to them for the immediate purposes of their struggle at home.

nor did they neglect statistics

During all this time the study of economic facts was not neglected in England. The work of Arthur Young, Eden, and Anderson was carried on by Tooke, M'Culloch and Porter And though it may be true that an undue prominence is given in their writings to those facts which were of direct interest to merchants and other capitalists, the same cannot be said of the admirable series of Parliamentary inquiries into the condition of the working classes, which were brought about by the influence of the economists. In fact, the public and private collections of statistics and the economic histories that were produced in England at the end of the last century and the beginning of this, may fairly be regarded as the origin of historical and statistical economics.

and inquiries into the condition of the working classes.

[1] The doctrine of the economists, embodied in the great Bullion Report of 1810, ascribed the unfavourable Exchanges to an excessive issue of inconvertible bank notes. The Resolution in which the Bank Directors declare that they are "unable to discover any solid foundation for such a sentiment" was passed in 1819 and rescinded in 1827. The principle of the Bullion Report was adopted in 1819 by Parliament, but they had rejected it by a large majority in 1811.

But they lacked a knowledge of the comparative method.

Nevertheless there was a certain narrowness in their work: it was truly historical; but for the greater part it was not "comparative." Hume, Adam Smith, Arthur Young and others had been led by their own instinctive genius and the example of Montesquieu occasionally to compare social facts of different ages and different countries, and to draw lessons from the comparison. But no one had grasped the notion of the comparative study of history on a systematic plan. In consequence the writers of that time, able and earnest as they were in their search for the actual facts of life, worked rather at haphazard. They overlooked whole groups of facts which we now see to be of vital importance, and they often failed to make the best use of those which they collected. And this narrowness was intensified when they passed from the collection of facts to general reasonings about them.

Their desire for simplicity led them to argue as though all mankind had the same habits of mind as city men.

§ 6. Partly for the sake of simplicity of argument, Ricardo and his followers regarded man as so to speak a constant quantity, and gave themselves little trouble to study his variations. The people whom they knew most intimately were city men; and they sometimes took it for granted that other Englishmen were very much like those whom they knew in the city. They were aware that the inhabitants of other countries had peculiarities of their own; but they regarded such differences, when they thought of them at all, as superficial and sure to be removed as soon as other nations had got to know that better way which Englishmen were ready to teach them. The same bent of mind that led our lawyers to impose English civil law on the Hindoos, led our economists to work out their theories on the tacit supposition that the world was made up of city men. And though this did little harm so long as they were treating of money and foreign trade, it led them astray as to the relations between the different industrial classes. It caused them to regard labour simply as a commodity without throwing themselves into the point of view of the workman; without allowing for his human passions, his instincts and habits, his sympathies and antipathies, his class jealousies and class adhesiveness, his want of knowledge

and of the opportunities for free and vigorous action. They therefore attributed to the forces of supply and demand a much more mechanical and regular action than they actually have: and laid down laws with regard to profits and wages that did not really hold even for England in their own time[1].

They did not allow enough for the dependence of man's character on his circumstances;

But their most vital fault was that they did not see how liable to change are the habits and institutions of industry. In particular they did not see that the poverty of the poor is the chief cause of that weakness and inefficiency which are the causes of their poverty: they had not the faith that modern economists have in the possibility of a vast improvement in the condition of the working classes.

a point on which the Socialists insisted.

The perfectibility of man had indeed been asserted by the socialists. But their views were based on little historic and scientific study; and were expressed with an extravagance that moved the contempt of the business-like economists of the age. The socialists did not study the doctrines which they attacked; and there was no difficulty in showing that they had not understood the nature and efficiency of the existing economic organization of society. It is therefore not a matter for wonder that the economists, flushed with their victories over a set of much more solid thinkers, did not trouble themselves to examine any of the doctrines of the socialists, and least of all their speculations as to human nature[2].

[1] As regards wages there were even some logical errors in the conclusions they deduced from their own premises. These errors when traced back to their origin are little more than careless modes of expression. But there were many hangers on of the science, who had no reverence for it, and used it simply as an engine for keeping the working classes in their place. Perhaps no other great school of thinkers has ever suffered so much from the way in which its hangers on and parasites, professing to simplify economic doctrines, really enunciated them without the conditions required to make them true. Miss Martineau for instance, who wrote tales designed to enforce economic doctrines, when describing the course of reading by which she prepared herself, says: "In order to save my nerves from being overwhelmed by the thought of what I had undertaken, I resolved not to look beyond the department on which I was engaged." (*Autobiography*, I. 194). Yet she did not intend to be dishonest, as is proved by her later confession of a 'suspicion that economic doctrines might be all wrong.'

[2] A partial exception must be made for Malthus whose studies of population were suggested by Godwin's essay. But he did not properly belong to the Ricardian school and he was not a man of business. Half a century later Bastiat published, in opposition to the socialists, an extravagant doctrine to the effect

Whose influence gradually made itself felt.

But the socialists were men who had felt intensely, and who knew something about the hidden springs of human action of which the economists took no account. Buried among their wild rhapsodies there were shrewd observations and pregnant suggestions from which philosophers and economists had much to learn. And gradually their influence began to tell. Comte's debts to them were very great; and the crisis of John Stuart Mill's life, as he tells us in his autobiography, came to him from reading them

The growing tendency of economists to take account of the pliability of of human nature

§ 7. When we come later on to compare the modern view of the vital problem of distribution with that which prevailed at the beginning of the century we shall find that over and above all changes in detail and all improvements in scientific accuracy of reasoning, there is a fundamental change in treatment; for while the earlier economists argued as though man's character and efficiency were to be regarded as a fixed quantity, modern economists keep constantly in mind the fact that it is a product of the circumstances under which he has lived. This change in the point of view of economics is partly due to the fact that the changes in human nature during the last fifty years have been so rapid as to force themselves on the attention; partly it has been due to the influence of individual writers, socialists and others; and it has been promoted by a parallel change in other sciences.

is partly due to the influence of biological studies.

At the beginning of this century the mathematico-physical group of sciences were in the ascendant; and these sciences, widely as they differ from one another, have this point in common, that their subject matter is constant and unchanged in all countries and in all ages. The progress of science was familiar to men's minds but the development of the subject-matter of science was strange to them. As the century wore on the biological group of sciences were slowly making way, and people were getting clearer ideas as to the nature of organic growth. They were learning that

that the natural organization of society under the influence of competition is the best not only that can be practically effected, but even that can be theoretically conceived. The lucidity of his style caused his works to have great vogue; but he really understood economic science, in the name of which he professed to write, scarcely better than did the socialists themselves.

if the subject matter of a science passes through different stages of development, the laws which apply to one stage will seldom apply without modification to others; the laws of the science must have a development corresponding to that of the things of which they treat. The influence of this new notion gradually spread to the sciences which relate to man; and showed itself in the works of Goethe, Hegel, and Comte.

At last the speculations of biology made a great stride forwards: its discoveries fascinated the attention of the world as those of physics had done in earlier years; and there was a marked change in the tone of the moral and historical sciences. Economics has shared in the general movement; and is getting to pay every year a greater attention to the pliability of human nature, and to the way in which the character of man affects and is affected by the prevalent methods of the production, distribution and consumption of wealth. The first important indication of the new movement was seen in the tone of John Stuart Mill's *Principles of Political Economy*[1].

John Stuart Mill.

The predominant position which that book held in England for a long time, and the dogmatism of some of its ardent admirers, have caused an impatient revolt against it. But meanwhile it has gone far towards forming the thoughts of nearly all the older living economists in England; and what is perhaps even more important, it has in a great measure determined the attitude which they take

[1] James Mill had educated his son in the straitest tenets of Bentham and Ricardo, and had implanted in his mind a zeal for clearness and definiteness. And in 1830 John Mill wrote an essay on economic method in which he proposed to give increased sharpness of outline to the abstractions of the science. He faced Ricardo's tacit assumption that no motive of action except the desire for wealth need be much considered by the economist; he held that it was dangerous so long as it was not distinctly stated, but no longer; and he half promised a treatise which should be deliberately and openly based on it. But he did not redeem the promise. A change had come over his tone of thought and of feeling before he published in 1848 his great economic work. He called it *Principles of Political Economy with some of their applications to Social Philosophy;* and he made in it no attempt to mark off by a rigid line those reasonings which assume that man's sole motive is the pursuit of wealth from those which do not. The change in his attitude was a part of the great changes that were going on in the world around him, though he was not fully aware of their influence on himself.

Recent English economists.

with regard to social questions. Mill's followers have continued his movement away from the position taken by the immediate followers of Ricardo; and the human as distinguished from the mechanical element is taking a more and more prominent place in economics. The new temper is shown alike in Jevons' subtle analysis of utility, in Cliffe Leslie's historical inquiries and in other many-sided original work that has been done in England by Bagehot, Cairnes and other writers who are yet living.

Characteristics of modern work.

As we saw at the end of the last chapter, England has recently made great advances in wealth and in knowledge, in temperance and in earnestness. A higher notion of social duty is spreading everywhere. In Parliament, in the press and in the pulpit, the spirit of humanity speaks more distinctly and more earnestly than it did. Mill and the economists who have followed him, have helped onwards this general movement, and they in their turn have been helped onwards by it. Partly for this reason, partly in consequence of the modern growth of historical science, their study of facts has been broader and more philosophic. It is true that the historical and statistical work of some of the earlier economists has seldom if ever been surpassed. But much information which was beyond their reach, is now accessible to everyone; and economists who have neither McCulloch's familiarity with practical business, nor his vast historical learning, are enabled to get a view of the relations of economic doctrine to the actual facts of life which is both broader and clearer than his. In this they have been helped by the general improvement which has taken place in the methods of all sciences including that of history.

Thus in every way economic reasoning is now more exact than it was: the premisses assumed in any inquiry are stated with more rigid precision than formerly. But this greater exactness of thought is partly destructive in its action; it is showing that many of the older applications of general reasoning were invalid, because no care had been taken to think out all the assumptions that were implied and to see whether they could fairly be made in the special cases under discussion. Thus many dogmas have been

destroyed which appeared to be simple only because they were loosely expressed, and which served as an armoury with which partisan disputants, chiefly of the capitalist class, have equipped themselves for the fray. This destructive work might appear at first sight to have diminished the value of processes of general reasoning in economics: but really it has had the opposite result. It has cleared the ground for newer and stronger machinery, which is being built up with the aid of the manifold experience got in the careful and exact work of modern sciences; in its dealings both with the organic and inorganic world. General reasoning in economics has thus made more rapid progress, and established a firmer position in this generation in which it is subject to much hostile criticism at every step, than when it was at the height of its popularity and its authority was seldom challenged.

So far we have looked at recent progress from the point of view of England only: but progress in England has been only one side of a broader movement which has extended over the whole western world.

French economists.

§ 8. English economists have had many followers and many critics in foreign countries. The French school has had a continuous development from its own great thinkers in the eighteenth century, and has avoided many errors and confusions, particularly with regard to wages, which have been common among the second rank of English economists. From the time of Say downwards it has done a great deal of useful work. In Cournot it has had a constructive thinker of the highest genius; while Fourier, St Simon, Proudhon and Louis Blanc have made many of the most valuable, as well as many of the wildest suggestions of Socialism.

The American School.

The American school of economists is sometimes understood to be the group of Protectionists who follow Carey's lead; but Carey owes many of his best thoughts on Protection to the German List: he did however good service in discovering that the early settlers in a new country often avoid, through fear of malaria and other causes, the soils which are ultimately the richest: and on this he based what he thought was a refutation of the chief doctrines of Malthus

and Ricardo, but what was in reality only an addition to them. Absorbed in current politics, the older American school did little to extend the boundaries of economic science. But there are growing up in America new schools of thinkers, who are studying the science for its own sake; and there are many signs that America is on the way to take the same leading position in economic thought, that she has already taken in economic practice.

Economic science is showing signs of renewed vigour in two of its old homes, Holland and Italy, and the recent work of the Austrian economists is giving them a claim to be regarded apart from the Germans, among whom they have often been classed. The most important economic work however that has been done on the Continent in this century is that of Germany. While recognizing the leadership of Adam Smith, the German economists have been irritated more than any others by what they have regarded as the insular narrowness and self-confidence of the Ricardian School. In particular they resented the way in which the English advocates of free trade tacitly assumed that a proposition which had been established with regard to a manufacturing country, such as England was, could be carried over without modification to agricultural countries. The brilliant genius and national enthusiasm of List overthrew this presumption; and showed that the Ricardians had taken but little account of the indirect effects of free trade. No great harm might be done in neglecting them so far as England was concerned; because there they were in the main beneficial and thus added to the strength of its direct effects. But he showed that in Germany and still more in America, many of its indirect effects were evil; and he contended that these evils outweighed its direct benefits. Many of his arguments were invalid, but some of them were not; and as the English economists scornfully refused them a patient discussion, able and public spirited men impressed by the force of those which were sound, acquiesced in the use for the purposes of popular agitation of other arguments which were unscientific, but which appealed with greater force to the working classes.

German economists.

List.

American manufacturers adopted List as their advocate: and the beginning of his fame as well as of the systematic advocacy of protectionist doctrines in America was in the wide circulation by them of a popular treatise which he wrote for them[1].

The Germans press the claims of nationalism against those of individualism on the one hand and cosmopolitanism on the other.

The Germans are fond of saying that the Physiocrats and the school of Adam Smith underrated the importance of national life; that they tended to sacrifice it on the one hand to a selfish individualism and on the other to a limp philanthropic cosmopolitanism. They urge that List did great service in stimulating a feeling of patriotism, which is more generous than that of individualism, and more sturdy and definite than that of cosmopolitanism. It may be doubted whether the cosmopolitan sympathies of the Physiocrats and of the English economists have been as strong as the Germans think. But there is no question that the recent political history of Germany has influenced the tone of her economists in the direction of nationalism. Surrounded by powerful and aggressive armies Germany can exist only by the aid of an ardent national feeling. It is not therefore to be wondered at that Germans have insisted on and perhaps even exaggerated the fact that altruistic feelings have a much more limited scope in the economic relations between countries than in those between individuals.

Their great work in the study of economic history by the com-

But though national in their sympathies, the Germans are nobly international in their studies. They have taken the lead in the "comparative" study of economic as well as of general history. They have brought side by side the

[1] It has already been observed that List overlooked the tendency of modern inter-communication to make the development of different nations synchronize. His patriotic fervour perverted in many ways his scientific judgment: but Germans listened eagerly to his argument that every country had to go through the same stages of development that England had gone through, and that she had protected her manufactures when she was in transition from the agricultural to the manufacturing stage. He had a genuine desire for truth; his method was in harmony with the comparative method of inquiry which is being pursued with vigour by all classes of students in Germany, but especially by her historians and lawyers; and the direct and indirect influence of his thought has been very great. His *Outlines of a New System of Political Economy* appeared in Philadelphia in 1827, while Carey's first important work, his *Principles of Political Economy*, was not published till 1837—40. List's *Das nationale System der Politischen Oekonomie* was published in 1840.

parative method.

social and industrial phenomena of different countries and of different ages; and have so arranged them that they throw light upon and interpret one another. The work of a few members of this school is tainted by exaggeration, and even by a narrow contempt for the reasonings of the Ricardian school, the drift and purpose of which they have themselves failed to understand: and this has led to much bitter and dreary controversy. But with scarcely an exception, the leaders of the school have been free from this narrowness. It would be difficult to overrate the value of the work which they and their fellow workers in other countries have done in tracing and explaining the history of economic habits and institutions. It is one of the great achievements of our age; and an important addition to the real wealth of the world. It has done more than almost anything else to broaden our ideas, to increase our knowledge of ourselves, and to help us to understand the central plan, as it were, of the Divine government of the world.

Their work in economic theory and analysis.

They have given their chief attention to the historical treatment of the science, and to its applications to the conditions of German social and political life, especially to the economic duties of the German bureaucracy. But led by the brilliant genius of Hermann they have made careful and profound analyses which add much to our knowledge, and they have greatly extended the boundaries of economic theory[1].

German Socialism.

German thought has also given an impetus to the study of socialism and the functions of the State. It is from German writers, chiefly of Jewish origin, that the world has received the greater part of the most thorough-going of recent propositions for utilizing the property of the world for the benefit of the community with but little reference

[1] In such matters, the English, the Germans and every other nation claim for themselves more than others are willing to allow them. This is partly because each nation has its own intellectual virtues and misses them in the writings of foreigners; while it does not quite understand the complaints which others make as to its shortcomings. But the chief reason is that a new idea is generally of gradual growth; and is often worked out by more than one nation at the same time: each of those nations is likely to claim it, and thus to underestimate the originality of the others.

to the existing incidents of ownership. It is true that on closer investigation their work turns out to be less original as well as less profound than at first sight appears: but it derives great power from its dialectic ingenuity, its brilliant style, and in some cases from its wide-reaching though distorted historical learning.

Besides the revolutionary Socialists, there is a large body of thinkers in Germany who are setting themselves to insist on the scantiness of the authority which the institution of private property in its present form can derive from history; and to urge on broad scientific and philosophic grounds a reconsideration of the rights of society as against the individual. The political and military institutions of the German people have recently increased their natural tendency to rely more on Government and less on individual enterprise than Englishmen do. And in all questions bearing on social reforms the English and German nations have much to learn from one another.

Germans and English have much to learn from one another.

But amid all the historical learning and reforming enthusiasm of the age in Germany and elsewhere there is danger that a difficult but important part of the work of economic science may be neglected. The popularity of economics has tended in some measure to the neglect of careful and rigorous reasoning. The growing prominence of what has been called the biological view of the science has tended to throw the notions of economic law and measurement into the background; as though such notions were too hard and rigid to be applied to the living and ever changing economic organism. But biology itself teaches us that the vertebrate organisms are the most highly developed. The modern economic organism is vertebrate; and the science which deals with it should not be invertebrate. It should have that delicacy and sensitiveness of touch which are required for enabling it to adapt itself closely to the real phenomena of the world; but none the less must have a firm backbone of exact reasoning.

Amid all the good work done by the new movements there is danger that the severer and less popular task of careful scientific reasoning may be neglected.

CHAPTER V.

METHODS OF STUDY.

Comte did good service in insisting on the unity that underlies social phenomena, but failed to show that there is no use in making special studies of certain classes of them.

§ 1. COMTE'S doctrine that all the aspects of social life are so closely connected that they ought to be studied together was one side of a great truth. But no serious attempt has yet been made to construct a social science that should do the same work for social life as a whole which has been done for one side of it by economics, young and full of imperfections as that is. Comte and Herbert Spencer have made epochs in thought, by their broad surveys and their suggestive hints: but there is as much reason as ever to fear that the whole world of man's actions is too wide and too various to be analyzed and explained by one intellectual effort. The physical sciences made slow progress so long as the brilliant but impatient Greek genius insisted in searching after a single basis for the explanation of all physical phenomena: their rapid progress in the modern age is due to a breaking up of broad problems into their component parts. There is no doubt an underlying unity in all the forces of nature, but whatever progress has been made towards discovering it, has depended on knowledge obtained by persistent specialized study no less than on occasional broad surveys of the field of nature as a whole. And similar patient detailed work is required to supply the materials which may enable future ages to understand better than we can the forces that govern the development of the social organism.

But even in the physical sciences, it is the duty of those who are giving their chief work to a limited field, to keep up

close and constant correspondence with those who are engaged in neighbouring fields: specialists who never look beyond their own domain are apt to see things out of true proportion; much of the knowledge they get together is of comparatively little use; they work away at the details of old problems which have lost most of their significance and have been supplanted by new questions rising out of new points of view; and they fail to gain that large illumination which the progress of every science throws by comparison and analogy on those around it. Comte did good service therefore by insisting that the solidarity of social phenomena must render the work of exclusive specialists even more futile in social than in physical science. But, as Mill urges, Comte only proves what no thoughtful person would deny, that "a person is not likely to be a good economist who is nothing else. Social phenomena acting and reacting on one another, they cannot rightly be understood apart; but this by no means proves that the material and industrial phenomena of society are not themselves susceptible of useful generalizations, but only that these generalizations must necessarily be relative to a given form of civilization and a given stage of social advancement[1]."

Again, it is true that economists, like all other students of social science, are concerned with individuals chiefly as members of the social organism. As a cathedral is something more than the stones of which it is made, as a person is something more than a series of thoughts and feelings, so the life of society is something more than the sum of the lives of its individual members. Nevertheless, the action of the whole is made up of that of its constituent parts; and in most economic problems the best starting-point is to be found in the motives that affect the individual, regarded not indeed as an isolated "atom" (to use a German phrase), but as a member of some particular trade or industrial group.

The German school of historical economics.

A position independent of Comte's, but in some respects allied to it, has been taken by the historical school of economists in Germany. They have been scarcely less eager than he was to insist on the solidarity of social phenomena; and

[1] Mill *On Comte*, p. 83.

some of them have spoken disparagingly of economic theory. But, on the other hand, they have carried the division of labour very far in special studies of economic facts, so that their work has thrown light on economic theory, has broadened it, has verified, and has corrected it; but, at the same time, has made use of its aid at almost every step[1].

Economic facts require to be carefully interpreted by reason.

§ 2. For indeed facts by themselves are silent, they teach nothing until they are interpreted by reason. In some of the elementary experiments of a physical laboratory the inference may be so palpable, the demand for the exercise of reasoning may be so slight, as almost to justify us in saying that the facts explain themselves, and give us direct information. But without the aid of careful reasoning, there is nothing to be learnt from economic facts, because no economic event or practical problem was ever exactly like any other. Of course there may be a close resemblance between two simple incidents: the terms of the leases of two farms may be governed by nearly the same causes: two references of wages questions to Boards of Arbitration may

[1] Mill's controversy with Comte is still worth studying. Comte's arguments have recently been restated with great force and eloquence by Dr Ingram: but they do not appear to have shaken Mill's position that Comte, though right when he affirmed, was wrong when he denied. A long controversy has been waged in England, Germany and more recently in America, as to the right method of economic study. Perhaps nearly everyone has been right when he has affirmed that a certain method is useful; it has generally been the one best adapted for that part of the many-sided work of economics in which he has had the most interest. But he has been wrong in denying that other methods are useful: they may be applicable for purposes other than those of which he has been chiefly thinking. Reference has already been made (Ch. iv. § 8) to the fact that the leaders of the German historical school are careful to avoid the extravagances into which some of their followers have drifted. It may be well to quote Wagner's own words when defending Schönberg's *Handbuch* against Schmoller's attacks: "We all, including I believe the chief representatives, other than Schmoller, of the historical school of National Economy, the founders of this movement, who must understand at least something of the historical conception—we all, Roscher and Knies not excepted, hold that...the identifying of economic history with economic theory (*Wirthschaftsgeschichte und Wirthschaftstheorie*) is not only not right, but is a confusion and an offence against the claims of logic in the systematology and methodology of the sciences." *Zeitschrift für die gesammte Staatswissenschaft* for 1883, p. 265—6. But Schmoller himself, in his controversy with Menger, the able leader of Austrian reaction in favour of the older methods of economic studies, is careful to disclaim some of the extreme pretensions of his followers. A short summary of this controversy is given in an article by Wagner, part of which is reproduced in the first number of the Boston *Quarterly Journal of Economics*.

raise substantially the same question. But there is no exact repetition even on a small scale; and however nearly two cases correspond, we have to decide whether the difference between the two may be neglected as practically unimportant: and this may not be very easy even if the two cases refer to the same place and time.

The untrustworthiness of *primâ facie* evidence drawn from the distant past.

And if we are dealing with the facts of remote times we must allow for the changes that have meanwhile come over the whole character of economic life: however closely a problem of to-day may resemble in its outward incidents another recorded in history, it is probable that the economist will detect a fundamental difference between their real characters. A careful inquiry has to be made as to whether this is so, before any valid argument can be drawn from one case to the other[1].

Observation and the records of history tell us that one event happened at the same time as another, or after it,

[1] Thus the introduction of the system of long leases at fixed money rents in North Britain was followed by a great improvement in agriculture, and in the general condition of the people there. But before inferring that it was the sole or even the chief cause of the improvement we must inquire what other changes were taking place at the same time, and how much of the improvement is to be referred to each of them. We must, for instance, allow for the effects of changes in the prices of agricultural produce, and of the establishment of civil order in the border provinces. To do this requires care and scientific method; and till it has been done, no trustworthy inference can be drawn as to the general tendency of the system of long leases. And even when it has been done, we cannot argue from this experience to a proposal for a system of long leases in, say, Ireland now, without allowing for differences in the character of local and world markets for various kinds of agricultural produce, for probable changes in the production and consumption of gold and silver, and so on. The whole history of Land Tenures is a most important study; but until carefully analyzed and interpreted by the aid of economic theory it throws no trustworthy light on the question what is the best form of land tenure to be adopted now in any country. Thus some argue that since primitive societies usually held their land in common, private property in land must be an unnatural and transitional institution. Others with equal confidence contend that, since private property in land has extended its range with the progress of civilization, it is a necessary condition for further progress. But to wrest from history her true teaching on the subject requires the effects of the common holding of land in the past to be analyzed so as to discover how far each of them is likely to act always in the same way, how far to be modified by changes in the habits, the knowledge, the wealth, and the social organization of mankind. Historical research of this kind requires all the resources of economic science: and those great men who by doing such work extend the boundaries of economic science, are not reluctant to acknowledge their obligations to its analyses and reasonings.

but they cannot tell us whether the first was the cause of the second. That can be done only by reason acting on the facts. When it is said that a certain event in history teaches this or that, it will be found that account has been taken only of some of the conditions which were present when the event happened; the rest are tacitly, if not unconsciously, assumed to be irrelevant. This assumption may be justifiable in any particular case; but it often turns out otherwise. Wider experience, more careful inquiry, may show that the causes to which the event is attributed could not have produced it unaided; perhaps even that they hindered the event, which was brought about in spite of them by other causes that have escaped notice.

To make such inquiries properly with regard to very distant events is often impossible; for we seldom have records of all the facts that are wanted for the purpose. But it can be done with regard to contemporary events in our own country. Whenever a conclusion is drawn from them that meets with opposition, it has to stand a sort of trial: rival explanations are offered, new facts are brought to light; the old facts are tested and rearranged, and in some cases shown to support the opposite conclusion from that on behalf of which they were at first invoked. Controversies of this kind often raise a dust which obscures the truth; but they serve a good purpose in showing us how much knowledge and judgment are required to sift and analyze economic facts, to balance them one against another, to check them and to interpret them by one another.

Induction and deduction mutually depend on one another.

§ 3. Thus induction and deduction go hand in hand. The progress of economic reasoning depends on the study of economic facts, and on the other hand, that study itself requires to be guided and directed by the scientific knowledge which is the outcome and abstract of a previous study of facts. Every new study of facts adds to our knowledge of the action of economic causes, it enables us to form a better judgment as to the effects which any cause is likely to produce, whether acting singly or in combination with others: and it puts us in a better position to detect the hidden causes of results which come under our notice. But the study to be service-

ible must be careful and thorough, and must be so arranged as to isolate the action first of one cause and then of another, and make a careful examination of each. The methods required for this work are not peculiar to economics; they are the common property of all sciences. All the devices for the discovery of the relations between cause and effect which are described in treatises on scientific method have to be used in their turn by the economist: there is not any one method of investigation which can properly be called the method of economics; but every method must be made serviceable in its proper place[1].

[1] Almost every scientific inquiry into the connection between cause and effect is made up of three rudimentary processes combined and applied so as to suit the special conditions of the problem. The first is to find the same cause working in many different surroundings, and in all producing the same effect; as, for instance, when we observe that so long as the greater part of the English labourers' wages had to be spent in bread, the marriage rate always fell when the price of wheat rose. Another is, having already discovered the effects of all causes, save one, at work in any case, to subtract these from the total effect, and by the method of residues to determine the effect of that one; as, for instance, when we analyze the excess of imports over exports, and, deducting that part which is due to freights and commissions, to the profits on English investments in foreign countries and other causes, determine whether there is any residue which must be accounted for by our borrowing from other countries. (See Giffen's *Essays*.) The third is the simplest, but cannot often be applied. It is, to find two cases which resemble one another in every respect except that a cause is present in one of them but not in the other. Then by holding the cases up to the light, as it were, against one another, the effect of that cause is made to stand out. The best, perhaps the only perfect, illustrations of this method met with in economics have reference to the physical laws which are used by the science, though they are not, properly speaking, economic laws, such as those bearing on the fertility of land: as when Sir John Lawes determines the influence of farmyard manure by cultivating two adjacent plots of similar soil in exactly the same way, except that only one of them is manured.

CHAPTER VI.

ECONOMIC MOTIVES.

Economics does not regard man as merely selfish;

§ 1. It is sometimes said that economists regard it as "natural" or "normal," and in some sense even right, that man should be governed only by selfish motives; this opinion may however be dismissed at once as a popular error, which finds no support in the teaching or practice of the best economists. But again it is said that the scope of economics is limited to the consideration of those actions which are governed by self-regarding, if not by selfish motives. This view also seems to be mistaken; but there is so much authority for it that it requires to be carefully examined.

but it concerns itself chiefly with those motives which are measurable,

When the older economists spoke of the "economic man" as governed by selfish, or by self-regarding motives, they did not express their meaning exactly. Mill truly observes that in economic phenomena "the psychological law mainly concerned is the familiar one that a greater gain is preferred to a smaller[1];" and argues that science gets a better hold in economic than in other social phenomena because it deals with motives that can be compared quantitatively and measured one against another. It is this notion of measurability that he really takes as the basis of his work, though he does not emphasize it.

and whose action can therefore be reduced to law and made the subject of scientific treatment.

The chief reason why, though backward relatively to physical science, economics has been able to get in advance of every other branch of social science, is that it deals mainly with just that class of motives which are measurable, and therefore are specially amenable to treatment by scientific machinery. Other branches of social science deal only with

[1] *Logic*, Book VI. Ch. IX. § 3.

the quality of human motive: economics deals with quantity as well as quality. Wide as are the interests of which the economist takes account when applying his doctrines to practice, the centre of his work is a body of systematic reasoning as to the quantities of measurable motives. For the purpose of this or that special illustration he may even neglect all others: but he must never lose sight of the real issues of life; and these are all, with scarcely any important exceptions, affected more or less by motives that are not measurable[1].

[1] Here we look at the individual, not as a "psychological atom" but as a member of a social group: and no method of measurement is of any avail which is not generally applicable to the whole of that group. And, whatever may be the case in the future, there is at present only one such method which avails for this: the method, namely, of reducing to a common measure the things that must be given to people to induce them to perform or abstain from performing certain actions. This then is the sense in which the term measurable motive is used here. As soon as a motive can be measured, so soon a part, at least, of the machinery of economic motives is applicable to it. In the world in which we live, money, as representing general purchasing power, is so much the best measure of motives that no other can compete with it. But this is, so to speak, an accident, and perhaps an accident that is not found in other worlds than ours. When we want to induce a man to do anything for us we generally offer him money. It is true that we might appeal to his generosity or sense of duty; but this would be calling into action latent motives that are already in existence, rather than supplying new motives. If we have to supply a new motive we generally consider how much money will just make it worth his while to do it. Sometimes indeed the gratitude, or esteem, or honour which is held out as an inducement to the action may appear as a new motive: particularly if it can be crystallized in some definite outward manifestation; as for instance in the right to make use of the letters C.B., or to wear a star or a garter. Such distinctions are comparatively rare and connected with but few transactions; and they would not serve as a measure of the ordinary motives that govern men in the acts of every-day life. But political services are more frequently rewarded by such honours than in any other way; so we have got into the habit of measuring them not in money but in honours. We say for instance that A's exertions for the benefit of his party or of the State, as the case may be, were fairly paid for by knighthood; while knighthood was but shabby pay for B, he had earned a baronetcy.

It is quite possible that there may be worlds in which no one ever heard of private property in material things, or wealth as it is generally understood; but public honours are meted out by graduated tables as rewards for every action that is done for another's good. If these honours can be transferred from one to another without the intervention of any external authority they may serve to measure the strength of motives just as conveniently and exactly as money does with us. In such a world there may be a treatise on economic theory very similar to the present, even though there be very little mention in it of material things, and no mention at all of money.

It may seem almost trivial to insist on this, but it is not so. For a misleading

The motive of earning money does not exclude other considerations;

§ 2. When the motive to a man's action is spoken of as supplied by the money which he will earn, it is not meant that his mind is closed to all other considerations save those of gain. Even the most purely business relations of life assume honesty and good faith; while many of them take for granted, if not generosity, yet at least the absence of meanness. The pride which every honest man takes in acquitting himself well, is a most important factor of economic efficiency, and an important item in every careful estimate of work and wages. Again, much of the work by which people earn their living is pleasurable in itself; and there is truth in the contention of the socialists that more of it might be made so. Many find in business work, that seems at first sight unattractive, a distinct pleasure, which is partly direct, and partly arises from the gratification which the work affords to their instincts of rivalry and power. Just as a race-horse or an athlete strains every nerve to get in advance of his competitors, and delights in the strain; so a manufacturer or a trader is often stimulated much more by the hope of victory over his rivals than by the desire to add something to his fortune. The action of such motives as these must be studied carefully by economists; and the allowance required to be made for them will in some cases be so great as to alter perceptibly the general character of their reasonings[1].

such as the pleasure afforded by the work itself and the instinct of power.

association has grown up in people's minds between that measurement of motives which is the chief task of economic science, and an exclusive regard for material wealth to the neglect of other and higher objects of desire. The only conditions required in a measure for economic purposes are that it should be something definite and transferable. Its taking a material form is practically convenient, but is not essential.

[1] German economists have done good service by insisting on this class of considerations, but they seem to be mistaken in supposing that it was overlooked by the older English economists. It is an English habit to leave much to be supplied by the common sense of the reader; in this case reticence has been carried too far, and has led to frequent misunderstandings at home as well as abroad. Thus prominence has been given to Mill's statement, that "Political Economy considers man as occupied solely in acquiring and consuming wealth" (*Essays*, p. 138, and again, *Logic*, Bk. VI. Ch. IX. § 3). But it is forgotten that he goes on to say, "There is perhaps, no action of a man's life in which he is neither under the immediate nor under the remote influence of any impulse but the mere desire of wealth;" and it is forgotten that his treatment of economic questions took constant account of many motives besides the desire for wealth (see above, Ch. IV. § 7). His discussions of economic motives are, however, far inferior both

Much of the best work of the world has no price, and evades altogether the economic calculus. Any education that a man gives himself or his children comes within its range only in so far as it is given with the purpose of enabling them to earn more money; we can seldom measure the money value of any bodily, mental or spiritual training that is an end in itself, and is not a means of pecuniary gain. Again, some of the work done in science, literature and art has a pecuniary motive; another and a higher part has its chief motive in the desire of fame; but the highest work of all has scarcely any other motive than the love of the work and the wish to do good to the world. The second part is theoretically capable of measurement: but the last, in common with much else that is noblest in human action is as a rule altogether incapable of it[1].

The highest motives are for the greater part non-measurable and evade the economic calculus.

Again, it is important to guard against the error of supposing that all measurable self-regarding motives are of a low order; for even when a person works simply in order to get money with the intention of spending it on himself, his chief aim may be to gain the means of culture, and the opportunity for doing some important work. Money is general purchasing power, and is sought as a means to all kinds of ends, high as well as low, spiritual as well as material[2].

Self-regarding measurable motives are not necessarily of a low order.

§ 3. The most systematic part of people's lives is generally that by which they earn their living. The work of all those engaged in any one occupation can be carefully observed; general statements about it can be formulated and

Business work has generally a money measure,

in substance and in method to those of his German contemporaries, and notably Hermann. The English reader may consult with advantage Syme's *Outlines of an Industrial Science*.

[1] An instructive argument that non-purchasable, non-measurable pleasures vary at different times and tend to increase with the progress of civilization is to be found in Knies' *Political Economy*, III. 3.

[2] This point is further developed in an admirable essay by Cliffe Leslie on *The Love Of Money*. We hear of people who pursue money for its own sake without caring for what it will purchase. No doubt this does sometimes happen at the end of a long life spent in business: in this as in other cases the habit of doing a thing is kept up after the purpose for which it was originally done has ceased to exist. And after all it gives such people a feeling of power over their fellow-creatures, and ensures them a sort of envious respect in which they find a bitter but strong pleasure.

tested by comparison with the results of other observations; and finally numerical estimates can be framed as to the amount of money or general purchasing power by which the services are measured, that is, the payment that is required to supply a sufficient motive for them.

It is true of nearly all motives that their force depends much on individual peculiarities of taste and temper; and this makes it very difficult to predict the action of any one person or "atom" of the social body. But the difficulty diminishes when we look at the action of an industrial group such as that which is formed by all the workers of any given class who live in the same neighbourhood: for their personal peculiarities are likely to counterbalance one another. So that in spite of the differences of individual character it is possible, for instance, to estimate very closely the payment that will be required to produce an adequate supply of labour of any grade, from the lowest to the highest, for a new trade which it is proposed to start in any place. A very little experience will enable a person in going over a factory of a kind that he has never seen before to tell within a shilling or two a week what each set of workers are earning, by merely observing how far theirs is a skilled occupation and what strain it involves on their physical, mental and moral faculties.

The unwillingness of people to undergo the fatigue of any particular kind of business work is therefore in the first rank of measurable motives. Again, the unwillingness to postpone enjoyment, and thus to save for future use, is measured by the interest that is got by the possession of accumulated wealth. And, lastly, the desire to obtain anything that is ordinarily bought and sold for money, is for that very reason easily measurable by the price that people are willing to pay for it; though here again allowance must be made for differences in the means of different classes of purchasers.

The range of economic measurement may gradually extend to

In all these kinds of action self-regarding motives are no doubt prominent; but they are not in exclusive possession. For instance, the chief motives of saving capital, of spending money on the education of children, and of buying things for their use, are unselfish: and the actions which are prompted

by them occupy a very large place in economics. The reason is that family affection acts with so much uniformity in any given stage of civilization that its effects can be systematically observed, reduced to law and measured.

much philanthropic action.

Those economists who have spoken of their science as concerned chiefly with self-regarding motives, have tacitly included among them a person's desire for the well-being of his family. But this is clearly illogical. The real reason why this desire is included and yet other benevolent and self-sacrificing motives are to a great extent left on one side by economics, is that their action is irregular. The expense which an Englishman with £500 a-year will incur for the education of his children can be told pretty well beforehand. But as the family in England has narrow limits, no good guess could be made of how much he would give to support a destitute second cousin. Still less could it be said how much time he would be willing to spend in visiting the fatherless and widows in their affliction.

Economics is much occupied with a man's willingness to sacrifice his own enjoyments for those of his family.

It is however true that some kinds of philanthropic action can be described in statistical returns, and can to a certain extent be reduced to law if sufficiently broad averages are taken. For there is scarcely any motive so fitful and irregular, but that some law with regard to it can be detected by the aid of wide and patient observation. It would perhaps be possible even now to predict with tolerable closeness the subscriptions that a population of a hundred thousand Englishmen of average wealth will give to support hospitals and chapels and missions, and in so far as this can be done there is a basis for an economic discussion of supply and demand with reference to the services of hospital nurses, and missionaries and other religious ministers. But still it is true that by far the greater part of those actions which are due to a feeling of duty and love of one's neighbour cannot be classed, tabulated, reduced to law and measured. It is for this reason, and not because they are not self-regarding, that the machinery of economics cannot be brought to bear on them[1].

[1] It may be objected that the higher motives are so different in quality from the lower, that the one cannot be weighed against the other. There is some

The motives to collective action are of great and growing importance to the economist.

Again, it is true that the earlier English economists paid too exclusive attention to the motives of individual action, to the neglect of those which lead to collective action. But, as German writers have insisted with much force, economics has a great and an increasing concern in motives connected with the collective ownership of property and the collective pursuit of important aims.

We shall presently have to consider some of the many forms of collective property. By far the most important is that of knowledge, which generally becomes the property of the world almost as soon as it is obtained. Other forms are roads, bridges, &c.; some people take nearly as great a delight in the beauty of their public buildings as in that of their own houses, in the richness of their public museums as in that of their private collections of pictures; they are glad to tax themselves to enable their government or their town council to carry out various plans for promoting the physical or moral well-being of the nation. Many new kinds of voluntary association are growing up under the influence of other motives besides that of pecuniary gain; and the co-operative movement in particular is opening to the economist new opportunities of measuring motives whose action it had seemed impossible to reduce to any sort of law.

Most of the sacrifices which men make for their country are such as cannot well be measured: but when many people do the same kind of thing in the same kind of way—as in

validity in this objection. The pain which it would cause an earnest and good man to do deliberately a wrong action, is so great that no pleasure can compensate for it; it cannot be weighed or measured. But even here it is not the quality of the pain, but its amount, that hinders it from being measured: the pain is practically infinite. People of a less noble nature do however sometimes deliberately act wrongly in order to gain some pleasure: and then the pleasure has weighed against and weighed down the pain of wrong-doing. Temptations to do wrong have so much variety in form and manner that their action can seldom be tabulated and reduced to law. But if it happens that the same kind of temptation is presented to a great many people in exactly the same way, it may be measured. For instance in the old days of bribery the pain and shame of voting against one's conscience was measured; and experienced agents could tell how many people in a given district would be induced to incur it for a bribe of 5s and how many for a bribe of £1. It is not likely that many facts of this kind will ever be ascertained; but if they should, it may be worth while to build up a special branch of economics, a sort of economic pathology, to deal with them

the case of compulsory conscription or even volunteer service —the economic calculus has a foothold. The growing earnestness of the age, the growing intelligence of the mass of the people, and the growing power of the telegraph, the press, and other means of communication are ever widening the scope of collective action for the public good. The voice of economics is but one among many that must be listened to in the preparation for any public action; but it may do more, as will presently be shewn, than it has done towards measuring the advantages of different plans of public enterprise and weighing them one against another.

Custom is an inertia, resisting change.

§ 4. Lastly, there is a certain class of influences on human action which do not tend to cause change: they play the same part in the moral world that friction does in the mechanical. When several forces are acting on a thing friction throws its strength with perfect impartiality against whichever of them are tending to prevail over the others and to cause movement. So whatever be the social forces that are tending to prevail over others and to cause change, they are opposed by the forces of individual habit, of social custom, of apathy, timidity and ignorance; or to sum up the whole in one word, by the want of free enterprise. Their influence is none the less disturbing because custom and habit have themselves in a great measure been slowly fashioned in the course of long generations by the almost unconscious balancing against one another of the motives for and against different courses of action.

The friction which they exert cannot be measured by itself; because its direction and even its force depend upon the tendency to change by which it is called into action. But it can be often measured indirectly. For instance, when there is a gain to be made by moving from one occupation to another, or by changing one mode of production or one market for buying or selling for another, the resistance of friction has to be overcome: and the amount of the friction can be measured by the amount to which the gain has to rise before the change is made.

CHAPTER VII.

THE NATURE OF ECONOMIC LAW.

The range of economic law is the same as that of economic motives.

§ 1. THE nature of economic law has been in some measure indicated in our inquiry as to the range of economic motive. Those actions that are governed by free enterprise and self-regarding motives are, as we have seen, those which are most easily reduced to law and measured; and reasonings with regard to such actions afford the simplest types of economic theory: but they are not the whole of it. Wherever any motive, whether self-regarding or not self-regarding, whether of public or private interest, whether based on wise judgment or on ignorant prejudice, affects any considerable class of people in the same way, then the action of that motive can often be reduced to some kind of money measure, if not directly, yet at least indirectly by comparison with other motives that can be measured directly; and then it can be brought more or less within the range of economic reasoning.

Economics is a science of human action; and economic laws, properly so-called, are laws of human action. It is true that the term is commonly used to include certain physical laws, which play a part in economic discussions: as, for instance, the Law of Diminishing Return, which economics borrows from the science of agriculture. But we are at present concerned with those laws only which truly belong to economics.

Corresponding to the substantive "law" is the adjective "legal". But this term is used only in connection with "law" in the sense of an ordinance of government; not in the sense of a scientific statement of connection between cause

and effect. The adjective used for this purpose is derived from "norma," a term which is nearly equivalent to "law," and might perhaps with advantage be substituted for it in scientific discussions.

Definitions of *law* and *normal*.

An ECONOMIC LAW is a statement that a certain course of action may be expected under certain conditions from the members of an industrial group: and that action is the NORMAL action of the members of that group.

Normal action is not always morally right; very often it is action which we should use our utmost efforts to stop. For instance, the normal condition of many of the very poorest inhabitants of a large town is to be devoid of enterprise, and unwilling to avail themselves of the opportunities that may offer for a healthier and less squalid life elsewhere. They have not the strength, physical, mental and moral, required for working their way out of their squalid surroundings. The existence of a considerable supply of labour ready to make match-boxes at a very low rate is normal in the same way that a contortion of the limbs is a normal result of taking strychnine. It is one result, a deplorable result, of the action of those laws which we have to study.

It will be understood then that that course of action will be called normal which is in general accordance with the "norma," the type or standard or general rule of the people whom we are at the time considering: the accordance must be sufficient to enable us to make the observations required for estimating the money measure or price, which will on the average be necessary and sufficient to induce them to undertake it[1].

[1] It will be noticed that this use of the word normal is broader than that which is often adopted. It is often said that those results only are normal which are due to the undisturbed action of free competition. And if a short and simple account of the term must be given, this is perhaps the best. But the term has often to be applied to conditions in which perfectly free competition does not exist, and can hardly even be supposed to exist. The use of the term now proposed is more in accordance with its etymological meaning, as well as with the ordinary language of everyday life. An objection may be raised that it has not a sufficiently definite and rigid outline: but as we go on it will, I think, be found that the difficulties arising from this source are not very great; and that the use now proposed will help to bring the doctrines of economics into closer connection with real life.

The general scheme of our economic reasoning is [illegible] by the kind of action which we thus regard as normal and coming within the range of economic law. Although scientific machinery should be as definite as possible, yet at the same time it should be flexible, so that it may be adjusted and applied to the varying circumstances and characters of many varieties of people in different countries and different times, in different occupations, and different classes of society.

It should always be used as far as it will reach, although in every case common sense is the ultimate arbiter of practical action.

The part which the machinery of science plays in the production of knowledge resembles in many ways that which material machinery plays in the production of goods; in both cases machinery selects those processes which can be reduced to system. In the production of goods, when the same kind of thing has to be done over and over again in the same way, it generally pays to make a machine to do it. But where there is so much changing variety of detail that it is either impossible, or at all events unprofitable, to use machines for the goods, they must be made by hand. Similarly in knowledge, when there are any processes of investigation or reasoning in which the same kind of work has to be done over and over again in the same kind of way, then it is worth while to reduce the processes to system and to erect the machinery of science in order to deal with them. But after all there is so much variety in economic problems, economic causes are intermingled with others in so many different ways, that exact scientific reasoning will seldom bring us all the way to the conclusion for which we are seeking. It would be foolish on this account to reject its aid so far as it will reach, but something must be left at the end to be done by practical instinct and trained common sense.

In some parts of the science the province of exact reasoning extends so far, that it can go near to indicating the right solution of practical problems. But in every practical problem it is common sense that is the ultimate arbiter. It is the function of common sense alone to propose a particular aim; to collect from each department of knowledge material adapted, so far as that department can do it, to the special purpose; to combine the various materials; to assign to each

its proper place and importance; and finally to decide what course is to be adopted. It is not the function of a science to lay down practical precepts or to prescribe rules of life. The laws of economics, as of other sciences, are couched in the indicative and not in the imperative mood: they are statements as to the effects produced by different causes, singly or in combination; they are not rules ready for immediate application in practical politics[1].

The laws of economics are not precepts.

§ 3. Again, the laws of economics as of other sciences are statements as to the effects which will be produced by certain causes, not absolutely, but subject to the condition that *other things are equal*, and that the causes are able to work out their effects undisturbed. On this account it has been called a hypothetical science, and this term has sometimes been used disparagingly. But every physical science is hypothetical in this sense. Even in a prediction of an eclipse, there is a suppressed condition that the solar system will not meanwhile have been disturbed by the explosion of one of its members, or the advent of a large external body. Such disturbances are so unlikely that astronomy is justified in taking no account of them; nevertheless it is based on hypothesis. In other sciences disturbing causes are more frequent, and therefore the conditioning clauses more frequent and more prominent. Almost every scientific doctrine, when carefully and formally stated, will be found to contain some proviso to the effect that other things are equal: the action of the causes in question is supposed to be isolated; certain effects are attributed to them, but only on the hypothesis that no cause is permitted to enter except those distinctly allowed for. These conditioning clauses are not continually repeated,

All scientific doctrines tacitly or implicitly assume certain conditions, and are in this sense hypothetical.

[1] On this subject there is little difference of opinion among English economists. But many writers in other countries, and especially in France, have not been careful to insist on the purely scientific character of economics; and have enlarged its scope so as to make it include much which we class as principles of practical politics or as utterances of individual publicists. A striking instance of this is found in M. Laveleye's *Les Lois de l'Économie Politique*. Of course an economist retains the liberty, common to all the world, of expressing his opinion that a certain course of action is the right one under given circumstances. And if the difficulties of the problem are chiefly economic, he may speak with a certain authority. But so may a chemist with regard to other problems, and yet no reasonable person regards the laws of chemistry as precepts.

but the common sense of the reader supplies them for himself. In economics it is necessary to repeat them oftener than elsewhere, because its doctrines are more apt than those of any other science to be quoted by persons who have had no scientific training, and who perhaps have heard them only at second hand and without their context, and they are liable even to be deliberately wrested from their proper meaning for partisan purposes[1].

But in economics the implied conditions must be emphasized.

Again, it is sometimes said that law is more universally true and less changeable in the physical world than in the relations with which economics deals[2]. It would perhaps be better to say that an economic law is applicable only to a very narrow range of circumstances, which happen to exist together at one particular place and time, but quickly pass away. When they are gone the law though still true as an abstract proposition, has no longer any practical bearing, because the particular set of causes with which it deals are nowhere to be found acting together without important disturbance from other causes. Though much of the scheme of economic theory, much of its scientific machinery, is of wide application, we cannot insist too urgently that every age and every country has its own problems; and that every change in social conditions is likely to require a new development of economic doctrines.

The scope of economic reasonings is wide, that of each particular doctrine is narrow.

[1] One reason why ordinary conversation is simpler in form than a scientific treatise, is that in conversation we can safely omit conditioning clauses; because if the hearer does not supply them for himself, we quickly detect the misunderstanding, and set it right. Adam Smith and many of the earlier writers on economics attained seeming simplicity by following the usages of conversation, and omitting conditioning clauses. But this has caused them to be constantly misunderstood, and has led to much waste of time and trouble in profitless controversy; they purchased apparent ease at too great a cost.

[2] See e.g. Knies, *Pol. Œkon.* III. 11.

CHAPTER VIII.

SUMMARY AND CONCLUSION.

Summary.

§ 1. We have traced the growth of economic freedom and enterprise, and have seen that the chief features of the present economic problem and the chief incentives to economic study are of quite recent date. Till not very long ago the distribution and exchange of wealth were governed in the main by conditions which changed but slowly, by institutions which had the authority of custom and prescription; and which most people were content to take as they found them. Even where there was no slavery and no rigid system of caste the governing classes seldom took much thought for the material well-being of the great mass of the workers; while the workers had not the habits of mind nor the opportunities of thought and action required for thinking out the problems of their own lives. Much of modern economics might indeed have been anticipated in the towns of the Middle Ages, in which an intelligent and daring spirit was for the first time combined with patient industry; but they were not left to work out their career in peace; and the world had to wait for the dawn of the new economic era till a whole nation was ready for the ordeal of economic freedom.

We have seen how England especially was prepared for the task, but how towards the end of last century, the changes which had so far been slow and gradual, suddenly became rapid and violent. Mechanical inventions, the concentration of industries, and a system of manufacturing on a large scale for distant markets broke up the old traditions of industry,

Summary.

and left every one to bargain for himself as best he might; and at the same time stimulated a rapid increase of population for which no provision had been made beyond standing-room in factories and workshops. Thus free competition, or rather, freedom of industry and enterprise, was set loose to run, like a huge untrained monster, its wayward course. The abuse of their new power by able but uncultured business men led to evils on every side; it unfitted mothers for their duties, it weighed down children with overwork and disease; and in many places it degraded the race. Meanwhile the kindly meant recklessness of the poor law did even more to lower the moral and physical energy of Englishmen than the hard-hearted recklessness of the manufacturing discipline; for by depriving the people of those qualities which would fit them for the new order of things, it increased the evil and diminished the good caused by the advent of free enterprise.

And yet the time at which free enterprise was showing itself in an unnaturally harsh form, was the very time in which economists were most lavish in their praises of it. This was partly because they saw clearly, what we of this generation have in a great measure forgotten, the cruelty of the yoke of custom and rigid ordinance which it displaced; partly because the general tendency of thought in England was that freedom in all matters, political and social, was worth having at every cost except the loss of security: but partly also it was that the productive force which free enterprise was giving to the nation, was the only means by which, weakened as it was by a series of bad harvests, it could offer a successful resistance to Napoleon. Economists therefore treated free enterprise not indeed as an unmixed good, but as the natural state of things; and they regarded its evils as of secondary importance.

Adhering to the lines of thought that had been started chiefly by mediæval traders, and continued by French and English philosophers in the latter half of the eighteenth century, Ricardo and his followers developed a theory of the action of free enterprise (or, as they said, free competition) which contained many truths that will be of high importance so long as the world exists. Their work was wonderfully

complete within the area which it covered: but that area was very narrow. Much of the best of it consists of problems relating to rent and the value of corn; problems on the solution of which the fate of England just then seemed to depend, but which, in the particular form in which they were worked out by Ricardo, have very little direct bearing on the present state of things. A good deal of the rest of their work was narrowed and almost spoiled by its regarding too exclusively the peculiar condition of England at that time; and this narrowness has caused a reaction.

So that now, when more experience and leisure, and greater material resources have enabled us to bring free enterprise somewhat under control, to diminish its power of doing evil and increase its power of doing good, there is growing up among many economists a sort of spite against it. Some German economists in particular exaggerate its evils, attributing to it the ignorance and suffering, which are the results either of tyranny and oppression in past ages, or of the misunderstanding and mismanagement of economic freedom.

Intermediate between these two extremes are the great body of economists who, in Germany, England, America, and other countries, are bringing to the study of economic questions an unbiassed desire to ascertain the truth, and a willingness to go through with the long and heavy work by which alone scientific results of any value can be obtained. Varieties of mind, of temper, of training and of opportunities lead them to work in different ways, and to give their chief attention to different parts of the problem. Some set themselves to collect and arrange facts and statistics relating either to past or to present times; while others occupy themselves chiefly with analysis and reasoning on the basis of those facts which are ready at hand. This division of labour, however, implies not opposition, but harmony of purposes. The main work of every modern school of economists is devoted to obtaining some part or other of that knowledge, which is necessary to enable us to understand the influences exerted on the quality and tone of man's life by the manner in which he earns his livelihood and by the character of that livelihood.

The economist must be greedy of facts; but facts by themselves teach nothing. History tells of sequences and coincidences: to interpret these and draw lessons from them requires the aid of reason. The work to be done is so various that much of it must be left to be dealt with by trained common sense, which is the ultimate arbiter in every practical problem. Economic science is but the working of common sense, organized and equipped with a machinery of general analysis and reasoning adapted for collecting, arranging, and drawing inferences from some particular class of facts. Though its scope is always limited, though its work without the aid of common sense is always vain, yet in almost every difficult problem it will enable common sense to go further than would otherwise be possible. Its chief work is connected with the measurement of motives by the price which, as a "norma" or general rule, is sufficient to induce a person of a particular class under given conditions to undertake a certain task or undergo a certain sacrifice. A statement with regard to man's normal action, or in other words an economic law, is not more hypothetical than the laws of the physical sciences: for they also contain or imply conditions. But there is more difficulty in making the conditions clear and more danger in any failure to do so, in economics than in physics.

The study of theory must go hand in hand with that of facts: and for dealing with most modern problems it is modern facts that are of the greatest use. For the economic records of the distant past are slight and untrustworthy, and the economic conditions of early times are wholly unlike those of the modern age of free enterprise, of general education, of true democracy, of steam, of the cheap press, and the telegraph.

Scientific inquiries are to be arranged with reference not to the practical aims which they subserve,

§ 2. Economics has then as its purpose firstly to acquire knowledge for its own sake, and secondly, to throw light on practical issues. But though we are right before entering on any study to consider carefully what are its uses, we should not plan out our work with direct reference to them. For by so doing we are tempted to break off each line of thought as soon as it ceases to have a direct and immediate bearing on

but to the nature of the subjects with which they are concerned.

that particular aim which we have in view at the time: the direct pursuit of practical aims leads us to group together bits of all sorts of knowledge, which have no connection with one another except for the immediate purposes of the moment; and which throw but little light on one another. Our mental energy is spent in going from one to another; nothing is thoroughly thought out; no real progress is made.

The grouping, therefore, which is best for the purposes of science proceeds on the principle of collecting all those facts and reasonings which are similar to one another in nature: so that the study of each may throw light on its neighbour. By working thus for a long time at one set of considerations, we get gradually nearer to those fundamental unities which are called nature's laws: we trace their action first singly, and then in combination; and thus make progress slowly but surely. The laws of human action are not indeed as simple, as definite or as clearly ascertainable as those of physics. But the *raison d'être* of economics as a separate science is that it deals chiefly with that part of man's action which is most under the control of measurable motives; and which therefore lends itself better than any other to systematic reasoning and analysis. The practical uses of economic studies should never be out of our minds; but our chief direct aims are to study and interpret facts and to find out what are the effects of different causes acting singly and in combination.

Questions to be investigated.

§ 3. Economics is then the science which investigates man's action in the ordinary business of life. It pursues the inquiries:—

How does economic freedom tend, so far as its influence reaches, to arrange the production, distribution and exchange of wealth? What organization of industry and trade does it tend to bring about; what forms of division of labour; what arrangements of the money market, of wholesale and retail dealing and what relations between employer and employed? How does it tend to adjust values, that is, the prices of material things whether produced on the spot or brought from a distance, rents of all kinds, interest on capital and the earnings of all forms of work, including that of undertaking

and managing business enterprises? How does it affect the course of foreign trade? Subject to what limitations is the price of anything a measure of its real utility? What increase of happiness is *prima facie* likely to result from a given increase in the wealth of any class of society? How far is the industrial efficiency of any class impaired by the insufficiency of its income? How far would an increase of the income of any class, if once effected, be likely to sustain itself through its effects in increasing their efficiency and earning power?

How far does, as a matter of fact, the influence of economic freedom reach (or how far has it reached at any particular time) in any place, in any rank of society, or in any particular branch of industry? What other influences are most powerful there; and how is the action of all these influences combined? In particular, how far does economic freedom tend of its own action to build up combinations and monopolies, and what are their effects? How are the various classes of society likely to be affected by its action in the long run; what will be the intermediate effects while its ultimate results are being worked out; and, account being taken of the time over which they will spread, what is the relative importance of these two classes of ultimate and intermediate effects? What will be the incidence of any system of taxes? What burdens will it impose on the community, and what revenue will it afford to the State?

Practical issues which stimulate the inquiries of the English economist at the present time.

§ 4. The practical issues which are a motive in the background to economic inquiries vary from time to time, and from place to place. But the following problems are of special urgency now in our own country:—

How should we act so as to increase the good and diminish the evil influences of economic freedom, both in its ultimate results and in the course of its progress? If the first are good and the latter evil, but those who suffer the evil, do not reap the good; how far is it right that they should suffer for the benefit of others?

Taking it for granted that a more equal distribution of wealth is to be desired, how far would this justify changes in the institutions of property, or limitations of free enterprise

even when they would be likely to diminish the aggregate of wealth? In other words, how far should an increase in the income of the poorer classes and a diminution of their work be aimed at, even if it involved some lessening of national material wealth? How far could this be done without injustice, and without slackening the energies of the leaders of progress? How ought the burdens of taxation to be distributed among the different classes of society?

Ought we to rest content with the existing forms of division of labour? Is it necessary that large numbers of the people should be exclusively occupied with work that has no elevating character? Is it possible to educate gradually among the great mass of workers a new capacity for the higher kinds of work; and in particular for undertaking co-operatively the management of the businesses in which they are themselves employed?

What are the proper relations of individual and collective action in a stage of civilization such as ours? How far ought voluntary association in its various forms, old and new, to be left to supply collective action for those purposes for which such action has special advantages? What business affairs should be undertaken by society itself acting through its Government, imperial or local? Have we, for instance, carried as far as we should the plan of collective ownership and use of open spaces, of works of art, of the means of instruction and amusement, as well as of those material requisites of a civilized life, the supply of which requires united action, such as gas and water, and railways?

When Government does not itself directly intervene, how far should it allow individuals and corporations to conduct their own affairs as they please? How far should it regulate the management of railways and other concerns which are to some extent in a position of monopoly, and again of land and other things the quantity of which cannot be increased by man? Is it necessary to retain in their full force all the existing rights of property; or have the original necessities for which they were meant to provide, in some measure passed away?

Are the prevailing methods of using wealth entirely justi-

fiable? What scope is there for the moral pressure of social opinion in constraining and directing individual action in those economic relations in which the rigidity and violence of Government interference would be likely to do more harm than good?

In what respect do the duties of one nation to another in economic matters differ from those of members of the same nation to one another?

BOOK II.

SOME FUNDAMENTAL NOTIONS.

CHAPTER I.

CLASSIFICATION. THE USE OF TERMS.

Principles of classification.

§ 1. As Mill says[1]:—"The ends of scientific classification are best answered when the objects are formed into groups respecting which a greater number of general propositions can be made, and those propositions more important, than those which could be made respecting any other groups into which the same things could be distributed." But we meet at starting with the difficulty that those propositions which are the most important in one stage of investigation are not unlikely to be the least important in another, if indeed they apply at all. The continual change and development of economic phenomena renders it impossible to decide once for all, what are the most important purposes which economic classification has to subserve.

The difficulties of classifying things which are changing their characters and their uses.

In this matter economists have much to learn from the recent experiences of biology: and Darwin's profound discussion of the question[2] throws a strong light on the difficulties before us. He points out that those parts of the structure which determine the habits of life and the general plan of each being in the economy of nature, are as a rule not those which throw most light on its origin, but those which throw least. The qualities which a breeder or a gardener notices as eminently adapted to enable an animal or a plant to thrive in its environment, are for that very reason likely to have been developed in comparatively recent times. And in like manner those properties of an economic institu-

[1] *Logic*, Bk. IV. Ch. vii. Par. 2.
[2] *Origin of Species*, ch. XIV.

tion which play the most important part in fitting it for the work which it has to do now, are for that very reason likely to be in a great measure of recent growth[1]. This is one of many reasons which force us constantly to compromise with regard to the use of terms. For of course if the sole purpose of our study of economics were to obtain knowledge that would guide us in the attainment of immediate practical ends, we should yet be bound to keep our use of terms as much as possible in harmony with the traditions of the past, in order that we might be quick to perceive the indirect hints and the subtle and subdued warnings, which the experiences of our ancestors offer for our instruction.

§ 2. The difficulties in the way of the right use of terms would be great, even if we confined our attention to the problems of our own time.

In its use of terms Economics must follow as closely as possible the practice of every-day life.

To begin with it is not possible to follow the established rule that there should be a separate term for every important notion met with in the science. In most physical sciences indeed this rule is rigidly followed, and a technical term is invented for each new notion as soon as it emerges. Whenever it is seen that the things which have a certain set of qualities will often be spoken of together, they are formed into a class with a special name. But economics cannot venture to make more than a very sparing use of special technical terms. Its reasonings must be expressed in language that is intelligible to the general public; it must therefore endeavour to conform itself to the familiar terms of every day life, and so far as possible must use them as they are commonly used.

But that is not always definite or consistent;

In common use almost every word has many shades of meaning, and therefore needs to be interpreted by the context. And, as Bagehot has pointed out, even the most formal

[1] Instances are found in many of the relations between employer and employed, between middleman and trader, between bankers and their two classes of clients, those from whom the bankers borrow and those to whom they lend. The substitution of the term "interest" for "usury" corresponds to a general change in the character of loans, which has given an entirely new key-note to our analysis and classification of the different elements into which the cost of production of a commodity may be resolved. Again the general scheme of division of labour into skilled and unskilled is undergoing a gradual change; the scope of the term "rent" is being broadened in some directions and narrowed in others; and so on.

writers on economic science are compelled by the scarcity of words at their disposal to follow this practice. But they often do it tacitly, sometimes even unconsciously, and hence arises confusion. If the reader were warned of the practice he would be more careful to supply an interpretation from the context. But the bold and rigid definitions with which the exposition of the science generally begins often lull him into a false security; he does not get to know what was really in the mind of the writer. Hence have arisen misunderstandings and controversies which have diverted men's energies from constructive work, have brought the science into disrepute, and are one of the chief causes of its backward state[1].

different classes of things shade off imperceptibly towards one another; there are but few hard and sharp lines of division.

Other difficulties are caused by the growth of the science. These again are greater in economics than in almost any other science, because most of the chief distinctions marked by economic terms are really only differences in degree. At first sight they have appeared to be differences of kind, having sharp outlines which could be clearly marked out by definitions; at all events if there were no stint to the supply of technical terms. But a more careful study often shows that there is no real discontinuity in nature where a discontinuity is suggested by ordinary language; and yet that suggestion has perhaps been emphasized by the formal definitions of the earlier writers on the science. It is a remarkable fact that the progress of economics has discovered hardly

[1] We ought "to write more as we do in common life, where the context is a sort of unexpressed 'interpretation clause'; only as in Political Economy we have more difficult things to speak of than in ordinary conversation, we must take more care, give more warning of any change; and at times write out 'the interpretation clause' for that page or discussion lest there should be any mistake. I know that this is difficult and delicate work; and all that I have to say in defence of it is that in practice it is safer than the competing plan of inflexible definitions. Anyone who tries to express various meanings on complex things with a scanty vocabulary of fastened senses, will find that his style grows cumbrous without being accurate, that he has to use long periphrases for common thoughts, and that after all he does not come out right, for he is half the time falling back into the senses which fit the case in hand best, and these are sometimes one, sometimes another, and almost always different from his 'hard and fast' sense. In such discussions we should learn to vary our definitions as we want, just as we say 'let x, y, z, mean' now this, and now that, in different problems; and this, though they do not always avow it, is really the practice of the clearest and most effective writers." (Bagehot's *Postulates of English Political Economy*, pp. 78, 9.)

any new real differences in kind, while it is continually resolving apparent differences in kind into differences in degree. We shall meet with many instances of the evil that may be done by attempting to draw broad, hard and fast lines of division, and to formulate definite propositions with regard to differences between things which nature has not separated by any such lines.

The analysis of conceptions should be rigorously scientific.

§ 3. With these difficulties before us, the right course seems to be to analyse thoroughly the notions which underlie the various meanings of the chief economic terms in common use, and to base all definitions on this analysis: which indeed is a work of the highest importance for its own sake. Even among the most careful thinkers there will always remain differences of opinion as to the exact places in which some at least of the lines of definition should be drawn. The questions at issue must in general be solved by judgments as to the practical convenience of different courses; and such judgments cannot always be established or overthrown by scientific reasoning: there must remain a margin of debateable ground. But there is no such margin in the analysis itself: if two people differ with regard to that, they cannot both be right. And the progress of the science may be expected gradually to establish this analysis on an impregnable basis.

Each term must have a definition corresponding to what seems to be its leading use: and this must be supplemented by an interpretation clause when necessary.

Starting with as good an analysis as we can at present make, we shall generally find that there is some use of each term which has distinctly greater claims than any other to be called its leading use, on the ground that it represents a distinction that is more important for the purposes of modern science than any other that is in harmony with ordinary usage. This may be laid down as the meaning to be given to the term whenever nothing to the contrary is stated or implied by the context. When the term is wanted to be used in any other sense, whether broader or narrower, an indication of the change must be given. This can often be managed without any formal interpretation clause. That must, however, be always supplied where there is any danger of misunderstanding[1]; and in a few cases of extreme necessity,

[1] When it is wanted to narrow the meaning of a term (that is, in logical language, to diminish its extension by increasing its intension) a qualifying adjective

special technical terms must be invented. By this means we shall retain simplicity of language, and yet attain a delicate adaptation of definition to the wants of each particular discussion.

All these difficulties are illustrated by a group of terms, connected with the notion of wealth: and these we must examine at once, because they will be used a great deal in the coming discussion of demand and supply.

Many of the questions raised in this Second Book are very complex and intricate; they cannot be altogether neglected; but yet they have not a very important bearing on the main problems of economics. The reader who is now first introduced to the subject, is therefore recommended to pass lightly over them, and to return to them at a later stage.

will generally suffice, but a change in the opposite direction cannot as a rule be so simply made. Contests as to definitions are often of this kind:—A and B are qualities common to a great number of things, many of these things have in addition the quality C, and again many the quality D, while some have both C and D. It may then be argued that on the whole it will be best to define a term so as to include all things which have the qualities A and B, or only those which have the qualities A, B, C, or only those which have the qualities A, B, D; or only those which have A, B, C, D. The decision between these various courses must rest on considerations of practical convenience, and is a matter of far less importance than a careful study of the qualities A, B, C, D, and of their mutual relations. But unfortunately this study has occupied a much smaller space in English economics than controversies as to definitions; which have indeed occasionally led indirectly to the discovery of scientific truth, but always by roundabout routes, and with much waste of time and labour.

CHAPTER II.

WEALTH.

§ 1. ALL wealth consists of desirable things, or as we may call them COMMODITIES, or GOODS. But many of the goods, or desirable things, which a man has are not reckoned as part of his wealth. We will first roughly classify goods, and then consider which of them are to be regarded as wealth. It will be noticed that here we are looking at goods from the point of view of the individual, and not from the "social" point of view, under which may be included the national and the "cosmopolitan" point of view, or that of mankind at large[1]. This seems to be the best starting point, though there is no substantial difference between the accounts that will ultimately be given of wealth from the individual and from the social points of view.

Goods are to be regarded first from the point of view of the individual.

"Some goods are INTERNAL, others EXTERNAL, to the individual. An internal good is that which he finds in himself given to him by nature, or which he educates in himself by his own free action, such as muscular strength, health, mental attainments. Everything that the outer world offers for the satisfaction of his wants is an external good to him[2]."

Internal and *External goods.*

[1] These terms are used by Prof. Wagner in his excellent account of the fundamental notions of economics, *Volkswirthschaftslehre*, Vol. I. Ch. i., to which the reader may be referred for notices of the chief discussions of definitions by German writers and others. See also Prof. Sidgwick's *Principles of Political Economy*, Book I. Ch. iii. and v.

[2] With these words Hermann begins that masterly analysis of wealth (*Staatswirthschaftliche Untersuchungen*, Ch. iii.) which is the basis of most modern German work in this direction. The central ideas of his analysis are indeed to be found in earlier writers, English and others. But he was the first to give them the clearness which comes from order and system.

Again goods are Material, or Personal and Immaterial. MATERIAL goods are all external. They consist of useful material things, and of all rights to hold, or use, or derive benefits from material things, or to receive them at a future time. Thus they include the physical gifts of nature, land and water, air and climate; the products of agriculture, mining, fishing, and manufacture; buildings, machinery, and implements; mortgages and other bonds; shares in public and private companies[1], all kinds of monopolies, patent-rights, copy-rights; also rights of way and other rights of usage. Lastly, opportunities of travel, access to good scenery, museums, etc. ought, strictly speaking to be reckoned under this head.

Material goods.

A man's EXTERNAL PERSONAL goods are benefits he derives from other persons. They include (i) personal services of all kinds; (ii) property in slaves, labour dues, etc.: (iii) his reputation, the organization of his business, and his business connection generally[2].

External personal goods.

Personal goods are however mostly internal: a man's PERSONAL INTERNAL goods consist of his own qualities and faculties for action and for enjoyment.

Internal personal goods.

Again goods may be TRANSFERABLE or NON-TRANSFERABLE. All internal goods are non-transferable but most external goods are transferable. There are however some exceptions; such external personal goods as the trust which a man may earn for his business cannot be transferred; while on the other hand there is a part of a man's business or professional connection which can be transferred, and is often sold under the name of good will. Even some material goods, which are of course also external, are physically incapable of being transferred, as for instance the advantages of climate, light, warmth, air, etc.

Transferable and non-transferable goods.

A person's non-transferable goods consist in a great part

The individual's

[1] That part of the value of the share in a trading company which is due to the personal reputation and connection of those who conduct its affairs ought properly to come under the next head as external personal goods. But the point is not of much practical importance.

[2] To these might be added the pleasures he derives from society, friendship, family affection, etc. But some confusion might be caused by introducing them here.

share of *collective goods.*

of his share of COLLECTIVE goods, i.e. goods which are not in private ownership. Under this head come the benefits which he derives from being a member of a certain state or community. These include civil and military security, and the right and opportunity to make use of public property and institutions of all kinds, such as roads, gaslight, etc, and rights to justice or to a free education. The townsman and the countryman have each of them for nothing many advantages which the other either cannot get at all, or can get only at great expense. Other things being equal, one person has more real wealth in its broadest sense than another, if the place in which the former lives has a better climate, better roads, better water, more wholesome drainage, and cheaper and better newspapers, and places of amusement and instruction. House-room, food and clothing, which would be insufficient in a cold climate, may be abundant in a warm climate: on the other hand that warmth which lessens men's physical needs, and makes them rich with but a slight provision of material wealth, makes them poor in the energy that procures wealth.

Many of a person's non-transferable goods, including nearly all his share of collective goods, may be omitted from the calculation when his position is compared with that of his neighbours. But they become very important when it is compared with that of persons who are living or have lived in other places or times under widely different conditions[1].

Free goods.

Those goods are FREE, which are not appropriated and are afforded by Nature without requiring the effort of man[2].

[1] The above classification of goods may be expressed thus:—

Goods are
- external
  - material
    - transferable
    - non-transferable
  - personal
    - transferable
    - non-transferable
- internal-personal-non-transferable.

Or to adopt another arrangement which is more convenient for some purposes, thus:—

Goods are
- material-external
  - transferable
  - non-transferable
- personal
  - external
    - transferable
    - non-transferable
  - internal-non-transferable.

[2] The land in its original state was a free gift of nature. But in settled

Exchangeable goods.

EXCHANGEABLE goods are all those transferable goods which are limited in quantity and not free. This distinction is not very important, because there are not many goods which are transferable, but being free, have no exchange value.

Goods of the first, second and higher orders.

Lastly, goods may be divided into GOODS OF THE FIRST ORDER, which satisfy wants directly, such as food, clothes, etc.; GOODS OF THE SECOND ORDER, which satisfy wants, not directly, but indirectly by contributing towards the production of goods of the first order, such as flour mills; while under the head of GOODS OF THE THIRD ORDER we may arrange all things that are used for making goods of the second order, such as the machinery for making milling machinery, and we may carry the analysis further if necessary. Goods of the first order are sometimes described as CONSUMPTION or CONSUMERS' GOODS; those of the second and higher orders being called PRODUCTION or PRODUCERS' GOODS[1].

Consumption and production goods.

§ 2. We may now pass to the question which of a person's goods it is most convenient to regard as constituting his wealth. In the present treatise, when nothing is said to

countries it is not a free good from the point of view of the individual. Wood is still free in some Brazilian forests: the fish of the sea are free generally: but some sea fisheries are jealously guarded for the exclusive use of members of a certain nation, and may be classed as national property. Oyster beds that have been planted by man are not free in any sense: those that have grown naturally are free in every sense if they are not appropriated; if they are private property they are still free gifts from the point of view of the nation, but since the nation has allowed its rights in them to become vested in individuals they are not free from the point of view of the individual, and the same is true of private rights of fishing in many rivers. But the wheat grown on free land and the fish caught in free fisheries are not free: for they have been acquired by labour.

[1] The latter classification seems to have been first indicated by Say (*Cours de l'Économie Politique*, Part I. Ch. xii.). It has been developed with great care and sagacity by Hermann and other writers. The division of goods into successive orders is due to Prof. Carl Menger, (*Volkswirthschaftslehre*, Ch. i. § 2,) and is used a good deal by Austrian economists. Of course a good may belong to several orders at the same time. For instance, a railway train may be carrying people on a pleasure excursion, and so far is a good of the first order; if it happens to be carrying also some tins of biscuits, some milling machinery and some machinery that is used for making milling machinery, it is at the same time a good of the second, third and fourth orders. But subtleties of this kind are of little use. There is not even any precise agreement as to the line of division between Consumption and Production goods. Such things as wheat are commonly ranked with the former, though speaking strictly they are raw materials and ought to be ranked as Production goods.

A person's *wealth* consists of his external goods.

the contrary, a person's WEALTH will be taken to consist of his external goods. The greater part of these are material goods, which, it will be remembered, include not only all useful material things, but all rights and opportunities to hold or use, or derive benefit from material things, or to receive them at a future time. To these have to be added external personal goods, which include business connections, good will, etc., and in some countries property in slaves, labour dues, etc.

It will be found that scarcely any discussions are affected by the question whether the term is used in this sense or in the narrower one which is more common among English economists and which limits it to those of his external goods which are transferable and not free. This narrow sense has its advantages: but it requires us to make a great and often very inconvenient distinction between the point of view of the individual and of society; for many of those things which are free gifts of nature to mankind are not free to the individual. In those very few cases in which the distinction is of any importance, the longer term EXCHANGEABLE WEALTH will be used to indicate all that part of a person's wealth which consists of those material sources of enjoyment, and of those rights to them which, being transferable and not free, can be appropriated and exchanged.

Exchangeable wealth.

§ 3. While the use of the term "wealth" just adopted is broader than that of some writers, it is narrower than that of others; for they follow on the lines indicated by Adam Smith[1], and include under wealth all personal goods, internal as well as external, which are directly useful in obtaining material wealth. Thus they make it include PERSONAL WEALTH; which they take to consist of all those energies, faculties, and habits which directly contribute to making people industrially efficient, together with their business connections and associations of every kind. These things have a claim to be regarded as economic, not only on account of their importance as factors in the production of wealth, but because their value is as a rule capable of some sort of indirect measurement[2].

Personal wealth

[1] Comp. *Wealth of Nations*, Book II. Ch. ii.

[2] Many curious, but practically unimportant, subtleties are met with in

This use of the term wealth has been generally adopted by French economists; and now many German and some English writers are tending in the same direction. There are many purposes for which it is highly convenient; and nothing seems to be gained by debarring ourselves, as some English and American economists wish, from ever having recourse to it. But since in the ordinary business of life the term wealth is generally taken in a narrower sense, it will not be used in this treatise to include internal personal wealth unless an express indication to that effect is supplied in the context.

is included by many continental economists.

Here we see a good illustration of the general rule that the analysis of economic notions is a question of scientific truth, as to which there is little disagreement among those who have carefully studied the matter; but that the question how broadly any term should be used is one merely of practical convenience, about which opinions may fairly differ. Every one is bound to make his use of the term clear; but no one can rightly accuse others of error because they use it in a broader or a narrower sense than seems best to his own judgment.

§ 4. We may now pass to the social point of view. SOCIAL WEALTH, to borrow a phrase that is used on the Continent, is the sum total of the wealth of the individuals composing that social group which is under discussion. To take a particular case of such a group:—NATIONAL WEALTH is the sum total of the wealth of the individuals composing the nation; and the boundary line round it may be drawn on any of the plans proposed for individual wealth. For some purposes an estimate of it is made directly and independently: for others it is more convenient to follow the arrangement adopted in the case of individual wealth, and

Wealth regarded from the point of view of Society. *Social wealth.* *National wealth.*

developing the definition of personal wealth; for instance, in so far as a person uses his faculties to do things for his own enjoyment, the benefit that he derives from them, though certainly part of his well-being, is perhaps best excluded from the estimate of his wealth. But the line of partition here is very thin. For instance the faculties of an Opera-singer are part of his wealth in so far as he uses them for hire, but are only elements of his well-being and not of his wealth in so far as he uses them to sing in private for his own pleasure. When however a dressmaker makes a dress for herself, her dress-making faculties are to be regarded as wealth in the broad use of that term.

to regard it as the aggregate of that. The fundamental notion of wealth from either point of view, we may repeat, is the same: the difference is chiefly one of arrangement.

Debts and obligations of all kinds from one member of a nation to another may be omitted.

Firstly, in estimating national wealth directly we can omit all debts and other obligations due to one member of a nation from another. For instance, so far as the English national debt and the bonds of an English railway are owned within the nation, we can adopt the simple plan of counting the railway itself as part of the national wealth, and neglecting railway and government bonds altogether[1]. But

[1] The value of a business may be to some extent due to its having a monopoly, either a complete monopoly, secured perhaps by a patent, or a partial monopoly, owing to its wares being better known than others which are really equally good; and in so far as this is the case the business does not add to the real wealth of the nation. If the monopoly were broken down, the diminution of national wealth due to the disappearance of its value would generally be more than made up, partly by the increased value of rival businesses, and partly by the increased purchasing power of the money representing the wealth of other members of the community. (It should however be added that in some exceptional cases, the price of a commodity may be lowered in consequence of its production being monopolized: but such cases are very rare, and may be neglected for the present.

Again, business connections and trade reputations add to the national wealth only in so far as they bring purchasers into relation with those producers who will meet their real wants most fully for a given price; or in other words only in so far as they increase the extent to which the efforts of the community as a whole meet the wants of the community as a whole. Nevertheless when we are estimating national wealth, not directly but indirectly as the aggregate of individual wealth, we must allow for these businesses at their full value, even though this partly consists of a monopoly which is not used for the public benefit. For the injury they do to rival producers was allowed for in counting up the values of their businesses; and the injury done to consumers by raising the price of the produce which they buy was allowed for in reckoning the purchasing power of their means, so far as this particular commodity is concerned.

A special case of this is the organization of credit. It increases the efficiency of production in the country, and thus adds to national wealth. And the power of obtaining credit is a valuable asset to any individual trader. If, however, any accident should drive him out of business, the injury to national wealth is something less than the whole value of that asset, because some part at least of the business which he would have done will now be done by others with the aid of some part at least of the capital which he would have borrowed.

There are similar difficulties as to how far money is to be reckoned as part of national wealth. Inconvertible paper currency, issued by the authority of government, is an order on the general wealth of the community: convertible notes by whomsoever issued are direct liens on the property of those who issue them. Thus, when reckoning the wealth of the country, we must count in all the precious metals in it, of whatever form they are. But we must not count in the paper currency: for that must be classed with mortgages, adding as much to the debtor as to the creditor side of the national balance, except indeed in so far as they add to the efficiency of its business organization, which is an im-

we still have to deduct for those bonds etc. issued by the English Government or by private Englishmen, and held by foreigners; and to add for those foreign bonds &c. held by Englishmen.

But free goods must be specified with greater care;

Secondly, there are many goods which are sometimes ignored in estimating individual wealth (though they are really part of it), because they are free to all; but which must be made prominent in an estimate of national wealth. It is obvious that a road, or a bridge, or a canal, that is open to the public toll free is not in any sense whatever a less important element of national wealth than it would be if it were in private hands and made to yield a direct money revenue; and that it must therefore be always counted in as part of the national wealth.

But the Thames has added more to the wealth of England than all its canals, and perhaps even than all its railroads. And though the Thames is a free gift of nature, except in so far as its navigation has been improved, while the canal is the work of man, we ought for many purposes to reckon the Thames a part of England's wealth as much as the Bridgewater canal.

also the value of the organization of society or the State.

Finally we should, in accord with German economists, lay stress on the non-material elements of national wealth. Scientific knowledge indeed, wherever discovered, soon becomes the property of the whole civilized world and may be called cosmopolitan rather than national wealth. The same is true of mechanical inventions and of many other improvements in the arts of production; and it is true of music. But

portant part of the country's wealth. Something may be reckoned for them under this head; the Scotch system of £1 notes has added much to the country's wealth. Of course there are some who think that the cost of a metallic currency is not compensated for by the security and other advantages which it affords. But since those nations which have a metallic currency could displace it if they chose by a paper currency, we are justified in assuming for the present that it is worth what it costs.

When we get at national wealth not directly, but as the aggregate of individual wealth, we count the gold and silver coin in the possession of each person as it stands. Notes issued by government and by private bodies are treated on the same plan as consols and railway debentures respectively: that is they are reckoned on both sides of the account: on the one side as part of the wealth of the individuals who hold them, and on the other as deductions from the wealth of the nation or the private bodies who issued them.

those kinds of literature which lose their force by translation, may be regarded as in a special sense the wealth of those nations in whose language they are written. And the organization of a free and well-ordered State is an important element of national wealth.

Cosmopolitan wealth.

COSMOPOLITAN WEALTH differs from national wealth much as that differs from individual wealth. In reckoning it, debts due from members of one nation to those of another may conveniently be omitted from both sides of the account. Again, just as rivers are important elements of national wealth, the ocean is one of the most valuable properties of the world. The notion of cosmopolitan wealth is indeed nothing more than that of national wealth extended over the whole area of the globe.

The juridical basis of rights to wealth.

Individual and national rights to wealth rest on the basis of civil and international law, or at least of custom that has the force of law. An exhaustive investigation of the economic conditions of any time and place requires therefore an inquiry into law and custom; and economics owes much to those who have worked in this direction[1]. But its boundaries are already wide; and the historical and juridical basis of the conceptions of property are vast subjects which may best be discussed in separate treatises.

The main purpose of this chapter has been to inquire what classes of things are to be included under the term wealth: and the question what value is to be ascribed to any element has been discussed only incidentally; as for instance where we had to reject from the inventory of wealth part of the value of a thing, on the ground that it had been already counted, or for some other reason. For this purpose private property has been reckoned at its exchange value. But the value of public property cannot always be so measured. No direct estimate for instance can be formed of the value which the Thames has for England. As we shall see presently[2] the exchange value of a thing is a very

[1] Professor Wagner, in particular, has thrown much light on the connection between the economic concept of wealth and the juridical concept of rights in private property.

[2] Book III. Ch. iv. and elsewhere.

imperfect measure of the total real benefits which it confers: it is an imperfect measure even with regard to commodities in the hands of private consumers; a still more imperfect measure with regard to railways, and useless with regard to such elements of national wealth as rivers and seas.

CHAPTER III.

PRODUCTIVE.

Man cannot produce matter, but only utilities inherent in matter.

§ 1. MAN cannot create material things. When he is said to produce material things, he really only produces utilities. In the mental and moral world indeed he may produce new ideas. But in the physical world, all that he can do is either to re-arrange matter so as to make it more useful, as when he makes a log of wood into a table; or to put it in the way of being made more useful by nature, as when he puts seed where the forces of nature will make it burst out into life[1].

The trader produces utilities.

It is sometimes said that traders do not produce: that while the cabinet maker produces furniture, the furniture-dealer merely sells what is already produced. But there is no scientific foundation for this distinction. They both produce utilities, and neither of them can do more: the furniture-dealer moves and re-arranges matter so as to make it more serviceable than it was before, and the carpenter does nothing more. The sailor or the railway-man who carries coal above ground produces it just as much as the miner who carries it underground; the dealer in fish helps to move on fish from where it is of comparatively little use to where it is of greater use; and the fisherman does no more. It is true that if there are more traders than are necessary, there is a waste. But there

[1] As James Mill has said, "The distinction between what is done by labour and what is done by nature is not always observed. Labour produces its effects only by consistency with the laws of nature. It is found that the agency of man can be traced to very simple elements. He does nothing but produce motion. He can move things towards one another, and he can separate them from one another. The properties of matter perform the rest." (*Elements of Political Economy*, Ch. i.)

is also waste if there are two men to a plough which can be well worked by one man; in both cases all those who are at work produce, though they may produce but little. Some American and other writers have revived the mediæval attacks on trade on the ground that it does not produce. But they have not aimed at the right mark. They should have attacked the imperfect organization of trade, particularly of retail trade. To this subject we must return.

Nearly all labour is in some sense productive.

§ 2. All labour is directed towards producing some effect. For though some exertions are taken merely for their own sake, as when a game is played for amusement, they are not counted as labour. We may define LABOUR as any exertion of mind or body undergone partly or wholly with a view to some good other than the pleasure derived directly from the work[1]. And if we had to make a fresh start it would be best to regard all labour as productive except that which failed to promote the aim towards which it was directed, and so produced no utility. But in all the many changes which the meaning of the word "productive" has undergone, it has had special reference to stored up wealth, to the comparative neglect and sometimes even to the exclusion of immediate and transitory enjoyment[2]; and an almost unbroken

[1] This is Jevons' definition (*Theory of Political Economy*, Ch. v.), except that he includes only painful exertions. But he himself points out how painful idleness often is. Most people work more than they would if they considered only the direct pleasure resulting from the work; but in a healthy state, pleasure predominates over pain in a great part even of the work that is done for hire. Of course the definition is elastic; an agricultural labourer working in his garden in the evening thinks chiefly of the fruit of his labours; a mechanic returning home after a day of sedentary toil finds positive pleasure in his garden work, but he too cares a good deal about the fruit of his labour; while a rich man working in like manner may be almost indifferent to the result of what he does.

[2] Thus the Mercantilists who regarded the precious metals, partly because they were imperishable, as wealth in a fuller sense than anything else, regarded as unproductive or "sterile" all labour that was not directed to producing goods for exportation in exchange for gold and silver. The Physiocrats thought all labour sterile which consumed an equal value to that which it produced; and regarded the agriculturist as the only productive worker, because his labour alone (as they thought) left behind it a net surplus of stored up wealth. Adam Smith softened down the Physiocratic definition; but still he considered that agricultural labour was more productive than any other. His followers discarded this distinction; but they have generally adhered, though with many differences in points of detail, to the notion that productive labour is that which tends to

But that labour is generally said to be specially productive which provides for the wants of the future rather than the present.

tradition compels us to regard the central notion of the word as relating to the provision for the wants of the future rather than those of the present. It is true that all wholesome enjoyments, whether luxurious or not, are legitimate ends of action both public and private; and it is true that the enjoyment of luxuries affords an incentive to exertion, and promotes progress in many ways. But if the efficiency and energy of industry are the same, the true interest of a country is generally advanced by the subordination of the desire for immediate luxuries to the attainment of those more solid and lasting resources which will assist industry in its future work, and will in various ways tend to make life larger. This general idea has been in solution, as it were, in all stages of economic theory; and has been precipitated by different writers into various hard and fast distinctions by which certain trades have been marked off as productive and certain others as unproductive.

The work of domestic servants is not necessarily unproductive.

For instance, many writers even of recent times have adhered to Adam Smith's plan of classing domestic servants as unproductive. There is doubtless in many large houses a superabundance of servants, some of whose energies might with advantage to the community be transferred to some other direction: but the same is true of the greater part of those who earn their livelihood by distilling whisky; and yet no economist has proposed to call them unproductive. There is no distinction in character between the work of the baker who provides bread for a family, and that of the cook who boils potatoes. If the baker should be a confectioner, or fancy baker, it is probable that he spends at least as much of his time as the domestic cook does, on labour that is unproductive in the popular sense of providing transitory and unnecessary enjoyments.

Productive is a transitive adjective.

There seems to be a way of escaping from most of these ambiguities and confusions. It would indeed be unsafe to

increase accumulated wealth; a notion which is implied rather than stated in the celebrated chapter of *The Wealth of Nations* which bears the title, "On the Accumulation of Capital, or on productive and unproductive Labour." (Comp. Travers Twiss, *Progress of Political Economy*, Sect. VI., and the discussions on the word Productive in J. S. Mill's *Essays*, and in his *Principles of Political Economy*.)

invent a number of new terms to correspond to the various uses of "productive." But recollecting that it is a transitive adjective, we can avoid all difficulties by the simple plan of considering what is the implied substantive which it governs, and supplying that substantive explicitly. When it means *productive of necessaries* (to anticipate the use of a term which we are just about to define), let us write in the phrase at length and the ambiguity disappears; when it means *productive of capital* in any form, let us say so; when it means *productive of accumulated wealth* in any form, let us say so.

When precision is necessary the implied substantive must be supplied.

But while frequently applied in each of these senses, it is still more often used to mean *Productive of the means of production, and of lasting sources of enjoyment.* Whenever we use the word PRODUCTIVE by itself, this is the sense in which it is to be understood. Among the means of production are included the necessaries of labour but not ephemeral luxuries; and the maker of ices is thus classed as unproductive whether he is working for a pastry cook, or as a private servant in a country house. But a bricklayer engaged in building a theatre is classed as productive.

Provisional definition of *productive.*

No doubt the dividing line between permanent and ephemeral sources of enjoyment cannot be drawn rigidly. But this is a difficulty which exists in the nature of things and cannot be evaded by any device of words. We can speak of an increase of tall men relatively to short without deciding whether all those above five feet nine inches are to be classed as tall, or only those above five feet ten. And we can speak of the increase of productive labour at the expense of unproductive without fixing on any rigid, and therefore arbitrary line of division between them. If such an artificial line is required for any particular purpose, it must be drawn explicitly for the occasion. But in actual fact such occasions seldom occur: it is perhaps not too much to assert that they never occur[1].

There is no hard and fast line of division in Nature and we seldom or never want an artificial one.

[1] The attempt to draw a hard and fast line of distinction where there is no real discontinuity in nature has often done more mischief, but has perhaps never led to more quaint results, than in the rigid definitions which have been sometimes given of this term productive. Some of them for instance lead to

the conclusion that a singer in an opera is unproductive, that the printer of the tickets of admission to the opera is productive; while the usher who shews people to their places is unproductive, unless he happens to sell programmes, and then he is productive. Senior points out that "a cook is not said to *make* roast meat but to *dress* it; but he is said to *make* a pudding....A tailor is said to *make* cloth into a coat, a dyer is not said to *make* undyed cloth into dyed cloth. The change produced by the dyer is perhaps greater than that produced by the tailor, but the cloth in passing through the tailor's hands changes its name; in passing through the dyer's it does not: the dyer has not produced a *new name*, nor consequently a *new thing*." *Pol. Econ.* pp. 51—2.

CHAPTER IV.

NECESSARIES.

The term necessaries also is elliptical.

§ 1. NECESSARIES are those things which are necessary for some purpose or other; and because different writers have had in their minds different purposes, and have not always explicitly stated what they are, the term has caused great confusion. Thus the case of this term is analogous to that of the term productive: each has been used elliptically, the subject to which it refers being left to be supplied by the reader; and since the implied subject has varied, the reader has often supplied one which the writer did not intend, and thus misunderstood his drift. In this, as in the preceding case, the chief source of confusion can be removed by supplying explicitly in every critical place that which the reader is intended to understand.

Necessaries for existence and necessaries for efficiency.

The older use of the term "necessaries" was limited to those things which were sufficient to enable the labourers, taken one with another, to support themselves and their families. Adam Smith and the more careful of his followers observed indeed variations in the standard of comfort at different times and places: they recognized that differences of climate, and differences of custom make things necessary in some cases, which are superfluous in others. But Adam Smith's view was much influenced by that of the Physiocrats, and their reasonings were based on the condition of the French people, in the eighteenth century, the great mass of whom had no notion of any necessaries beyond those which were

required for mere existence. In happier times, however, a more careful analysis has brought into prominence the distinction between the necessaries for efficiency and the necessaries for existence, and has made it evident that there is for each rank of industry at any time and place a more or less clearly defined income which is necessary for merely sustaining its members, while there is another and larger income which is necessary for keeping it in full efficiency.

Thus in the South of England population has increased during the present century at a fair rate, allowance being made for migration. But the efficiency of labour, which in earlier times was as high as that in the North of England, has sunk relatively to the North; so that the low-waged labour of the South is often dearer than the more highly paid labour of the North. This indicates that the labourers in the South have had the bare necessaries for existence and the increase of numbers, but that they have not had the necessaries of efficiency.

Account must be taken of the conditions of place and time and of the habits of living.

It may be true that the wages of any industrial class might have sufficed to maintain a higher efficiency, if they had been spent with perfect wisdom. But every estimate of necessaries must be relative to a given place and time; and unless there be a special interpretation clause to the contrary, it may be assumed that the wages will be spent just with that amount of wisdom, forethought, and unselfishness, which prevails in fact among the industrial class under discussion. With this understanding we may say that the income of any class in the ranks of industry is below its NECESSARY level, when any increase in their income would in the course of time produce a more than proportionate increase in their efficiency[1].

Necessaries.

[1] If we consider an individual of exceptional abilities, all his consumption is strictly productive and necessary, so long as by cutting off any part of it, he would diminish his efficiency by an amount that is of more real value to him or the rest of the world than he saved from his consumption. If a Newton or a Watt could have added a hundredth part to his efficiency by doubling his personal expenditure, the increase in his consumption would have been truly productive. As we shall see later on such a case is analogous to additional cultivation of rich land that bears a high rent: it may be profitable though the return to it is less than in proportion to the previous outlay. On the other hand when the earnings of an industrial class are already a fair measure of the services that

§ 2. The necessaries for the efficiency of an ordinary agricultural or of an unskilled town labourer and his family, in England, in this generation, may be said to consist of a well-drained dwelling with several rooms, warm clothing, with some changes of underclothing, pure water, a plentiful supply of cereal food, with a moderate allowance of meat and milk, and a little tea, &c., some education and some recreation, and lastly, sufficient freedom for his wife from other work to enable her to perform properly her maternal and her household duties. If in any district unskilled labour is deprived of any of these things, its efficiency will suffer in the same way as that of a horse that is not properly tended, or a steam engine that has an inadequate supply of coals. All consumption up to this limit is strictly productive consumption: any stinting of this consumption is not economical, but wasteful.

There is waste when any one consumes less than is necessary.

In addition, perhaps, some consumption of alcohol and tobacco, and some indulgence in fashionable dress are in many places so habitual, that they may be said to be CONVENTIONALLY NECESSARY, since in order to obtain them, the average man and woman will sacrifice some things which are necessary for efficiency. Their wages are therefore less than are practically necessary for efficiency, unless they provide not only for what is strictly necessary or productive consumption, but also for a certain amount of conventional necessaries. But of course if it were the habit of the country that the family should do for themselves, proper time being allowed for it, things which the English labourer generally pays to have done for him (such as baking their own bread, or making their own clothes), his necessary wages would be diminished by a corresponding sum.

Conventional necessaries.

The strict necessaries of the unskilled labourer who has to do sustained and exceptionally exhausting work, include a large supply of animal food. Those of the skilled labourer include generally a good deal of animal food, more education and more recreation than those of the unskilled labourer, and

Different employments have different necessaries.

they render to the community, any further increase of their income involves a real burden to the community when it ceases to bring with it proportionate increase of their efficiency. This fact is very important, as will appear hereafter.

his conventional necessaries are considerably greater, particularly in the direction of dress. Again it is necessary for the efficiency of the highest ranks of industry, including the professional classes, that they should have food of the most easily digestible kinds, house-room sufficient for quiet, some travel and change of scene, books and other implements for their work, and a very expensive education. All these are necessaries strictly so called: the consumption of them is productive: to abstain from consuming them is wasteful. In addition to these there are many conventional necessaries, which in the present state of society, no individual can dispense with, without a risk of losing social influence, and perhaps indirectly impairing his efficiency. But society as a whole could, if so minded, dispense with a great part of them without injuring its efficiency. And perhaps more than half of the consumption of the upper classes of society in England is wholly unnecessary[1].

Many luxuries take the place of less expensive necessaries.

Many things which are rightly described as superfluous luxuries, do yet, to some extent, take the place of necessaries. A dish of green peas in March, costing perhaps ten shillings, is a superfluous luxury: but yet it is wholesome food, and does the work perhaps of three pennyworth of cabbage; or even, since variety undoubtedly conduces to health, a little more than that. So it may be entered perhaps at the value of fourpence under the head of necessaries; and at that of nine shillings and eightpence under that of superfluities. In exceptional cases, as for instance when the peas are given to an invalid, the whole ten shillings may be well spent and reproduce their own value.

[1] For the sake of giving definiteness to the ideas it may be well to venture on estimates of necessaries, rough and random as they must be. Perhaps at present prices the strict necessaries for an average agricultural family are covered by fifteen or eighteen shillings a week, the conventional necessaries by about five shillings more. For the unskilled labourer in the town a few shillings must be added to the strict necessaries. For the family of the skilled workman living in a town, we may take twenty-five or thirty shillings for strict necessaries and ten shillings for conventional necessaries. For a man whose brain has to undergo great continuous strain the strict necessaries are perhaps two hundred or two hundred and fifty pounds a year if he is a bachelor: but more than twice as much if he has an expensive family to educate. His conventional necessaries depend on the nature of his calling.

Man can consume, as he can produce, only utilities.

Lastly we may notice that just as man can produce only utilities, so he can consume nothing more. He can produce services and other immaterial products, and he can consume them. But as his production of material products is really nothing more than a rearrangement of matter so as to give it new utilities[1], so his consumption of them is nothing more than a disarrangement of matter, which diminishes or destroys its utilities.

[1] See above, Ch. III. § 1.

CHAPTER V.

CAPITAL.

The term capital has many different uses. We may not venture to invent a separate term for each of them.

§ 1. THE term "capital" has many widely divergent uses both in the language of the market-place and in the writings of economists. There is no other part of economics in which the temptation is so strong to invent a completely new set of technical terms; each of which should have a precise and fixed meaning, while between them they should cover all the various significations which are given to the one term capital in the language of the market-place. But this would throw the science out of touch with real life; and academic exactness of logical form would be obtained at the cost of grave substantial injury. We must therefore take the ordinary usages of the term as the foundation of our account, and add such general explanations, and even in some cases such special interpretation clauses, as are required to give to our use of the term some measure of clearness and precision.

Adam Smith's use of the term.

Adam Smith said that a person's capital is that part of his stock from which he expects to derive an income[1]. This account is consistent with ordinary usage so long as we regard capital from the point of view of the individual; and we will confine ourselves for the present to that, leaving the discussion of Social capital to a later stage. We may slightly modify Adam Smith's phrase, and say that INDIVIDUAL CAPITAL is that portion of a person's external goods by which he obtains his livelihood (*Erwerbsmittel*).

Individual capital includes

[1] *Wealth of Nations*, Book IV. Ch. i.

Trade-capital.

The most conspicuous elements of Individual capital are such things as the factory and the business plant of a manufacturer; that is, his machinery, his raw material, any food, clothing, and house-room that he may hold for use of his employés, and the goodwill of his business, at all events in so far as it is capable of being sold to his successor. Here we include all things which are let out on hire, such as houses, carriages, and sewing-machines, all wealth or command over wealth which is let out at interest, whether in money or in any other form; whether lent to help people to establish themselves in business or to indulge in idle and injurious dissipation.

That part of capital from which a money income is derived may be called *Trade-capital*.

These are instances of things from which their owner expects to derive an income in the special form of money. It is no doubt very convenient that this group of things should have a common class name. But they do not constitute the whole of Individual capital, and we must not apply the term "capital" simply to this use, except where there is no danger of misunderstanding. The central notion of this grouping is that the things are used for trade purposes, and this notion ought to be expressed by their name. We may then define a person's TRADE-CAPITAL to consist of those external goods which he uses in his trade, either holding them to be sold for money or applying them to produce things that are to be sold for money. Under this head are to be reckoned fancy ball dresses that are let out for hire, but not the house in which a frugal working man lives if he happens to own it himself; ices in the hands of a pastry cook, but not the store of wheat for his own use which a man has grown on his allotment; and not even the sewing-machine with which his wife make clothes for the family.

The habit of regarding as of special importance that part of a person's income which comes to him in the form of money is a survival of the prejudices of the Mercantile System; and in the following chapter and elsewhere we shall be a good deal occupied with the attempt to free ourselves from its misleading influence, and to group together things that are substantially of the same kind even though

some of them are, and others are not, clothed in the form of money payments. Leaving then Trade-capital for its own special uses, and they are not unimportant, we will go on to complete our account of individual capital.

Elements of Individual capital that are not included in Trade-capital.

To do this we have simply to add to Trade-capital all those things which are required to enable a productive worker to do his work and earn his livelihood, whether they are in his own possession or not, whether he derives benefit from them directly and without the intermediation of money or not. Thus it includes a manufacturer's store of necessaries for his own living and efficiency as well as those for the living and efficiency of his work-people: they are part of the means by which he earns his livelihood.

The question whether free gifts of nature are to be included may be left open.

A person's capital is most commonly taken to include land and other free gifts of nature, at all events if he uses them directly or indirectly as a means of earning his livelihood. But even in ordinary conversation the "rent" which he derives from them is sometimes separated from the "interest" or "profits" which he derives from his capital. For some purposes it is convenient to include them, for others not: the same writer will—whatever his formal definition be—often include them in some parts and exclude them in other parts of his reasonings. On the whole it seems best to be bold, and do this openly. Thus then the question whether the free gifts of nature which are in any person's ownership are to be counted as part of his capital, is left to be decided by an interpretation clause in the context, wherever there is room for misunderstanding on the point.

We arrive on somewhat surer ground when, leaving the discussion of individual capital, we pass to consider it from the point of view of society.

The scope of the term Social capital.

§ 2. We have already noticed that national wealth stands in the same relation to cosmopolitan, in which individual wealth does to national; and so with regard to capital. But we may here confine ourselves to the discussion of social capital; of which national and cosmopolitan capital are special instances. We must recollect that as the older term national capital represented not that capital only which is the common property of the nation, but the aggregate of the capital

which the nation possesses whether in public or private ownership; so the more modern term social capital indicates the aggregate of the real capital, private as well as public, owned by the members of any society which is under discussion.

The capital in the ownership of a nation or other society can be defined on more purely economic lines than that in the ownership of an individual.

For this reason, boundaries of private rights of property do not much trouble us here. The debts and other obligations from one group of persons to another enter on both the debtor and creditor sides of the account, and destroy one another, as soon as we count up the resources of a nation or other society which includes both groups. Moreover the usages of business life are in this case less troublesome; because while the social view of capital is the more important for the general purposes of economics, it plays a less prominent part in ordinary discourse. Thus we are able to be guided more strictly by purely economic[1] considerations; to exclude without hesitation the free gifts of nature; and to regard social capital as consisting of things made by mankind as resources wherewith to meet future needs.

Two attributes of capital:

The first quality of social capital is its "prospectiveness": on that all writers are agreed. The second, which nearly all concur in assigning to it, is that of assisting society in earning its livelihood[2], that is in production: for while an individual may obtain his livelihood from others by a course which does not add anything to the production of wealth, a self-contained nation or other social group can add to its means of livelihood only by an excess of production over consumption.

Its prospectiveness.

The histories of the terms "productive labour" and "Capital" are closely allied: productive labour and capital have always been regarded as devoted to providing enjoyment and the sources of enjoyment for the future rather than for the present. Some enjoyment is indeed derived from the consumption of the necessaries of life which are included

[1] Compare the account of Wagner's position in the note at the end of this chapter.

[2] Compare the quotation from Boehm-Bawerk in the note at the end of the chapter.

under capital; but they are counted as capital because of the work for the future which they enable people to do, and not on account of the present pleasure which they afford. Thus capital is said to be the result of saving, of a sacrifice of present enjoyments for the sake of future: and it is chiefly for this reason that economists exclude from capital in its pure economic sense those free gifts of nature which have not been made by man; though they include the value of the improvements which man has added to the natural resources of the land.

Its productiveness.

While then all economists regard prospectiveness as an essential attribute of capital, the majority of them insist also on its productiveness; and call nothing capital of which it can be said that, if it were taken away, the world's work would go on with equal efficiency. Skill and other kinds of internal wealth which contribute directly to the production of material wealth are omitted; but business organizations are counted in at the value of what they add to the efficiency of production[1].

Though the matter is one on which opinions may fairly differ, it seems on the whole best to adopt this position, and to combine the two notions of prospectiveness and productiveness in our standard definition.

Definition of *Social capital.*

SOCIAL CAPITAL may thus be defined as consisting of those things made by man, by which the society in question obtains its livelihood; or, in other words, as consisting of those external goods without which production could not be carried on with equal efficiency; but which are not free gifts of nature. It consists firstly of stores of commodities provided for the sustenance of workers of all industrial grades: and secondly of raw materials, of machinery, and all other aids to production.

Consumption capital.

The first group may be called CONSUMPTION CAPITAL. It consists exclusively of such goods as food, clothing, houseroom, &c. which are in a form to satisfy wants directly. That is, it consists of *goods of the first order*[2], or *consumption goods*;

[1] The relation in which capital stands to money and credit may be treated generally on the plan indicated above, Book II. Ch. ii. § 4. But it involves some difficult problems which will require our careful attention at a later stage.

[2] See above Ch. II. § 1.

but it does not include the whole of them. For those goods which are destined to be consumed without adding to the efficiency of production, are not to be regarded as capital, when they are in the hands of consumers. The food, &c. which is required for children who are growing up to be workers, is to be included here.

Auxiliary capital.

The second group may be called AUXILIARY CAPITAL. It consists of all *production goods*, or in other words of all *goods of the second and higher orders*. Since raw materials and machinery are always counted as production capital even though they be devoted to making superfluities, this concession seems to require us to go further in conformity with usage, and to include also stocks of luxuries in the hands of traders.

We must include the necessaries of the higher as well as of the lower grades of industry.

That part of consumption capital which goes into the hands of hired labourers may be regarded as wage-capital from the social point of view. But it must be recollected that wage-capital, so defined, and auxiliary capital do not constitute the whole of social capital; there remain the necessaries of the higher classes of industry. On the other hand we ought not, strictly speaking, to include under wage-capital the luxuries as well as the necessaries of the wage-receivers; so long, that is, as we are regarding capital from the social point of view. Much error has arisen from the assumption, into which some writers have glided from a careless use of the term wage-capital, that the necessary consumption of the lower classes of industry stands in a different relation to national capital and national production from the necessary consumption of other workers[1]. This is, for practical purposes, the most important correction which it seems requisite to introduce into the ordinary definitions of capital.

Our definitions of Social and

It is scarcely requisite to remark that, as in the case of wealth, there are many things, such as roads, bridges,

[1] Of course there is a fringe of debateable ground at the margin of each definition. A factory is auxiliary capital simply; a weaver's cottage in which he plies his trade is partly auxiliary and partly consumption capital. The private dwelling-house of a rich man engaged in business is consumption capital to the extent of that accommodation which directly contributes to the health and efficiency of himself and his family: but beyond that, it is not capital at all, in the use of the term which we are adopting.

Individual capital are in general harmony.

and the organization of the State, which are part of capital, and are important when capital is regarded from the point of view of the nation; but which it is not necessary to mention when comparing one person's capital with that of his neighbour; and which therefore often drop out of view in estimating individual capital.

When our standard definitions of individual and social capital are compared, it will appear that they are in general harmony with one another; though usage does not allow us to make them absolutely coincident[1].

Some writers extend the meaning of the term so as to include what we may call *Potential capital*,

§ 3. But while the majority of writers adopt the course which has been followed in our standard definitions of capital, others extend its limits, so as to include not only all things which are destined to promote production, but all things which are capable of being so used. Thus for instance they include all the stock of grain in a country without inquiring whether it is to be used in feeding people who work or people who live idly; whether in feeding cart-horses or race-horses. In short they include what is potentially capital according to our definition as well as what is actually capital. This broad use of the term has its advantages; but on the whole it seems best to take the narrower as our standard use, and to have recourse to the phrase POTENTIAL CAPITAL when we want to refer to the broader group of things.

and some even make it at most co-extensive with

Some writers go even further; and laying stress almost exclusively on the notion of "prospectiveness" include under

[1] No great trouble or confusion is caused by the fact that the value of land, without allowing for improvements, and of other free gifts of nature is generally excluded from social capital and more often included in individual capital. More difficulty might have arisen from the habit of reckoning a trader's stock of superfluities as part of his capital, if we had adhered to what appears at first sight the natural course of excluding them from social capital. But the universal habit of including under social capital all raw materials and machinery, even if they are used solely in making superfluities, has brought about the result that less logical inconsistency is involved by including traders' stocks of superfluities in social capital than by excluding them. Nor does any real difficulty arise from the fact that when wealth is lent to a government or a person who uses it unproductively, the lender counts that wealth as part of his capital; while yet it does not appear in the inventory of social capital. For negative capital to the amount of the loan may be charged to the account of the borrower: and this course is habitually adopted by those who attempt to express in mathematical form doctrines relating to the quantity of capital.

capital all external goods which are made by man and "saved" to become the sources of future enjoyment.

stored-up wealth.

This divergence as to the use of the term capital is due, as has been already remarked, to the fact that economists may not venture to invent for themselves a technical terminology independent of the ordinary language of business. Thinkers who are agreed on all substantial points, continue to differ as to what is the least injurious method of effecting a compromise between scientific consistency and popular usage; and as to what arrangement of the few terms at their disposal will best eke out their resources. The divergence has been a great stumbling-block to many readers of economics; so great a variation in the use of so prominent a term appears necessarily to land the science in confusion. But in fact the difficulty is much less serious than it seems at first sight.

This divergence in the use of the term is to be regretted.

But it causes less confusion than might have been expected.

For whether a writer takes a broader or a narrower view of capital, he finds that the various elements of which it is composed differ more or less from one another in the way in which they enter into the different problems with which he has successively to deal. He is compelled therefore to supplement his standard definition by an explanation of the bearing of each several element of capital on the point at issue. These special analyses are substantially the same in the works of all careful writers on economics, however divergent may be their standard definitions of capital; the reader is thus brought to very much the same conclusion by whatever route he travels; though it may sometimes require a little trouble to discern the unity in substance that underlies the differences in the words which are used by different schools of economists to express their doctrines relating to capital[1].

[1] For instance, whatever definition of capital we take, it will be found to be true that a general increase of capital augments the demand for labour and raises wages: and whatever definition we take it is not true that all kinds of capital act with equal force in this direction, or that it is possible to say how great an effect any given increase in the total amount of capital will have in raising wages, without specially inquiring as to the particular form which the increase has taken. This inquiry is the really important part of the work: it has to be made in very much the same manner and it comes to the same result, whatever be the definition of capital with which we have started. Similar remarks apply to the investigation

Circulating and *Fixed capital.*

§ 4. Whether we use the term capital in its broader or its narrower sense, we may follow Mill in distinguishing CIRCULATING CAPITAL "which fulfils the whole of its office in the production in which it is engaged, by a single use," from FIXED CAPITAL "which exists in a durable shape and the return to which is spread over a period of corresponding duration."

Specialized capital.

Sometimes again we have to distinguish certain kinds of capital as SPECIALIZED because having been designed for use in one trade they cannot easily be diverted to another.

A caution against a source of confusion.

Mill and others have used fixed capital sometimes in the sense that we have retained for it, sometimes in the senses that we have given to specialized and to auxiliary capital. But there is much fixed capital which is not specialized, such as buildings and some kinds of machinery which are adapted to many different trades: while some materials of manufacture and other kinds of circulating capital are specialized. Again much fixed capital is also consumption capital, as for instance workmen's cottages.

Personal capital.

Almost all modern definitions of capital include, as ours have done, business goodwill and similar external personal goods which have exchange value: but many writers go further and include Personal capital. We have already defined Personal wealth[1] to consist firstly of those energies, faculties and habits which directly contribute to making people industrially efficient, and secondly of their business connections and associations of every kind. The first group consists of internal goods and the second of external goods; but both are productive; and therefore if they are to be reckoned as wealth at all, they are also to be reckoned as capital.

of the causes which determine the rate of interest on capital, and its aggregate amount.

If we were free to construct a terminology with sole reference to the needs of economic science, it might perhaps be best to invent other terms for other uses which the term capital is now made to subserve, and to devote that term exclusively to representing the amount of labour combined with abstinence that is invested in any particular source of enjoyment made by man. For this conception is capable of being developed, from a purely abstract point of view, with logical consistency, and mathematical exactness of quantitative measurement. To this point we shall return in the historical note at the end of the chapter and elsewhere.

[1] Book II. Ch. ii. § 3.

Thus Personal wealth and Personal capital are convertible; and it seems best to follow here the same course as in the case of wealth, and for the same reasons. That is, it is best to assume that the term "capital" when taken alone includes none but external goods; but yet to raise no objection to an occasional broad use of the term, in which it is explicitly stated to include Personal capital.

HISTORICAL NOTE ON DEFINITIONS OF THE TERM "CAPITAL."

THE following are among the chief definitions of capital in which it is regarded as consisting of those things which relate to future production. It will be found that most of them tacitly assume that capital is to be regarded from the social point of view, even though the wording at first sight seems rather to suggest the individual point of view. Ricardo says, *Principles of Political Economy*, Ch. IV.):—"Capital is that part of the wealth of a country which is employed in production and consists of food, clothing, tools, raw materials, machinery, etc. necessary to give effect to labour." Malthus in his *Definitions in Political Economy* says:—"Capital is that portion of the stock of a country which is kept or employed with a view to profit in the production and distribution of wealth." Senior in his *Political Economy* says:—"Capital is an article of wealth, the result of human exertion, employed in the production or distribution of wealth." John Stuart Mill in his *Principles of Political Economy*, Book I. Ch. IV. § 1, says:—"What capital does for production, is to afford the shelter, protection, tools and materials which the work requires, and to feed and otherwise maintain the labourers during the process. Whatever things are destined for this use are capital." Or to use his own summary:—"Capital is wealth devoted to reproductive employment."

The first great impulse in the direction of insisting on the distinction between social and individual capital seems to have been given by Rau, who defines capital from both points of view, as "the means of obtaining a livelihood" (*Erwerbsmittel*), and makes a suggestive though not completely satisfactory distinction between them, very much in modern fashion (*Volkswirthschaftslehre*, §§ 51—55, 120—133). Again Roscher says "Capital we call every product laid by for purposes of further production" (*Political Economy*, § XLII.). Wagner says:—(*Volkswirthschaftslehre*, § 28) that in regarding capital we must distinguish between the pure economic and the historic-juristic (*geschichtlich-rechtlich*) standpoints. From the former point of view it is a provision of means of production (*Productionsmittel-Vorrath*). From

a second point of view it is regarded as that part of the possessions of an individual which are used by him as a means of obtaining a livelihood (*Erwerbsmittel*). From this point of view we count in the free gifts of nature which have become private property, but not from the former point of view. Kleinwächter in Schönberg's Handbuch remarks with much truth that this definition puts prominently forward, and with the most pregnant brevity, that which is common to all this group of definitions. Somewhat to a similar effect Sidgwick, *Principles of Political Economy*, Book I. Ch. v.), defines Social capital as "Wealth employed to bring a surplus or profit not to the individual owner only but to the industrial community of which he is a member," while he holds that "Individual's Capital is wealth employed for profit." Böhm-Bawerk (*Geschichte der Capitalzins-Theorien*) defines capital as "A complex of means of obtaining a livelihood made by man; that is a complex of goods which had their origin in a previous process of production and are destined not for immediate consumption for the sake of enjoyment (*Genusskonsumtion*) but the acquisition (*Erwerbung*) of more goods." The history of the above definitions seems to show a distinct tendency in the direction of those which have been adopted as the standard definitions in the text. But an attempt is made there to carry this movement further in the direction of distinguishing the consumption which is necessary for efficiency on the part of workers of all grades, from that which is not thus necessary.

But meanwhile nearly all the earlier French Economists have followed in the lines laid down by the Physiocrats before Adam Smith wrote, and used the term "capital" very much in the sense in which he and his immediate followers used the word "stock," to include all accumulated wealth (*valeurs accumulées*) which are the result of the excess of production over consumption. And although in recent years they have shown a decided tendency to use the term in the narrower English sense, there is at the same time a considerable movement on the part of some of the profoundest thinkers in Germany and England in the direction of the older and broader French definition. The Physiocrats were undoubtedly led in this direction by their bias towards mathematical habits of thought; because it is possible to represent by a clear-cut mathematical formula the elements of past labours that were devoted to providing for the needs of the future, each multiplied by compound interest for the time during which its fruits were in abeyance. This formula has great attractions, but it does not correspond closely to the conditions of real life. For instance it takes no account of the different rates of depreciation of different products of past labour, according as the purposes for which they were originally intended have retained their ground, or have become obsolete. And where corrections of this class are introduced the formula loses its one great merit of simplicity combined with exactness.

It was probably Hermann's mathematical bias that inclined him to

say (*Staatswirthschaftliche Untersuchungen*, Chs. III. and V.), that capital consists of goods "which are a lasting source of satisfaction that has exchange value." Those which give the satisfaction directly and without changing their form are consumption-capital (*Nutz-Kapital*), and include such things as furniture and clothing. He classes under the head of "production capital" nearly all those things which most English writers regard as constituting the whole of capital. But he includes free gifts of nature under each of his heads. Again the same mathematical bias has led Jevons to a very similar conclusion (see in particular his "Quantitative Notions concerning capital," and his argument that "Articles in the consumer's hands are capital," in Ch. VII. of his *Theory of Political Economy*). Knies and Cohn have adopted definitions not very dissimilar from Hermann's.

The American Astronomer, Newcomb (*Principles of Political Economy*, Book II. Ch. V.), defines capital as "wealth desired not for its own sake, but for the sake of the Sustenance [i.e. consumption-wealth] which it will enable us to produce," and proposes that we should debit a person who lives in a hired house with *negative capital* to the amount of the value of that house. He thus carries out to its logical conclusion a proposal that has often been made (as for instance by Mr Macleod) with regard to the loan of capital. This plan simplifies the relation in which social capital stands to individual capital; and it avoids the common difficulty of having to say that when a boat builder hires his carriage from a carriage builder, who meanwhile hires his yacht from the boat builder, the capital of each would be diminished if each were to buy the thing that he had been hiring. But his plan still fails to exhibit clearly the increased provision for the future which is made when a durable stone house is substituted for a perishable wooden one, which gave for the time equal accommodation.

Adam Smith's distinction between Fixed and Circulating capital turned on the question whether the goods "yield a profit without changing masters" or not. Ricardo made it turn on whether they are "of slow consumption or require to be frequently reproduced;" but he truly remarks that this is "a division not essential and in which the line of demarcation cannot be accurately drawn." Mill's modification of Ricardo's definitions of these terms is generally accepted by modern economists.

With slight variation in phraseology productive capital is divided by almost all economists of every country into the raw material, the implements of production and the sustenance of productive labourers; though as we have already seen the limits of this last element have not been properly studied. The plan of including the skill and ability of human beings under the head of capital which was adopted by Adam Smith, has been nearly universal in France, and is now very common in all countries.

Karl Marx and his followers lay down the doctrine that only that is capital, which is a means of production owned by one person (or group of persons) and used to produce things for the benefit of another, generally by means of the hired labour of a third; in such wise that the first has the opportunity of plundering or exploiting the others. This arbitrary doctrine leads them by a different route very nearly to the same result as is reached by those, who neglect all values that do not take a direct money form, and limit capital to what has been called Trade-capital in the text. Mr Henry George, though not in general agreement with Marx, seems to have been unconsciously influenced by Marx's followers on this point; and an astonishing number of readers both in America and England have thought that he has overthrown a fundamental doctrine of economic science, when really he has only misunderstood what, when rightly interpreted, is a truism. He objects (*Progress and Poverty*, Book I. Ch. II.) to the plan followed by Mill of declaring those things only to be capital which are destined to support and aid productive labour. He says that "by remitting the distinction to the mind of the capitalist," Mill makes it "so vague that no power short of omniscience could tell in any given country at any given time what was and what was not capital." And then, with a strange inconsistency, Mr George goes on to give his own definition thus:—"If the articles of actual wealth existing at any time in a given community were presented *in situ* to a dozen intelligent men who had never read a line of political economy, it is doubtful if they would differ in respect to a single item as to whether it should be accounted capital or not. Money which its owner holds for use in business or in speculation would be accounted capital; money set aside for household or personal expenses would not. That part of a farmer's crop held for sale or for seed, or to feed his help in part payment of wages, would be accounted capital; that held for the use of his own family would not be." Thus in his own definition Mr George assumes that any intelligent man will be able to read a distinction that is remitted to the mind of the capitalist: he assumes this not only in the case of corn which the farmer destines to be eaten by his help and not by himself, but also in the case of that impalpable thing, his money, existing perhaps only in the books of his banker, which the farmer destines to be used in his business and not for household expenses. Mr George then applies his definition in an attack on Mill's doctrine that "Industry is limited by Capital." That was an awkward and unfortunate sentence which we shall have to consider later on. Meanwhile it is enough to observe that Mr George's criticisms of it lose their force if we remember that it is deliberately based on a definition which includes under the head of capital, the food of the farmer and of his labourers even though it be already in their own possession.

CHAPTER VI.

INCOME.

§ 1. A PERSON'S total income during, say, a year, consists of all the new economic goods which come to him during the year. If in order to obtain some of them he had to part with other goods, his TOTAL REAL INCOME is found by deducting the value of the latter from that of the former; or in other words, by deducting from his gross income "the outgoings that belong to its production"[1].

Total Real income.

But for some of the practical purposes of life it is customary to consider only his MONEY INCOME; that is those elements of his total real income which come to him in the form of money. To these are however sometimes added those elements which he can easily convert into money, or which save him some pecuniary expense; for instance, if a man lives in his own house, or farms his own land, the estimated rent of the house or of the farm is ordinarily reckoned as part of his income. But no account is commonly taken of the benefit he derives from the use of his furniture; so that if he had been in the habit of hiring a piano, and determined to sell a railway share and buy the piano instead of hiring it, his money income would be diminished by the dividend from the share, although it is probable that his total real income would be increased by the change.

Money income.

Again, anything which a person does for which he is paid directly or indirectly in money, helps to swell his money income, while no services that he performs for himself are reckoned as adding to his nominal income, though they may

Elements of real income which do

[1] See a report of a Committee of the British Association, 1878.

not appear in the form of money are in some danger of being overlooked.

be a very important part of his total real income. A man who digs in his own garden or repairs his own house, is earning income just as would the gardener or carpenter whom he might hire to do the work. The factory woman who hires others to tend her children and to do some of her household work, often finds that by staying at home she would increase the real income of the family, even while diminishing its money income by the amount of her wages. In the same way that real earnings are in the factory districts often less than they appear to be, they are generally more than they appear to be where agricultural populations make in the winter evenings cloth or other things for their own use, as was done to a great extent in mediæval times, and as is done even now in some parts of the world. On the other hand the caste system of the Hindoo makes him pay for having things done for him, which labourers in most parts of the world do for themselves; his income is less than it appears to be by what he pays for having himself shaved and for the washing of the clothes of himself and his family[1]. But when we are comparing people whose habits of life are in most respects the same, it is seldom worth while to take any special account of the minor services which each performs for himself.

It would be a great convenience if there were two words available: one to represent a person's total income and another his money income, i.e. that part of his total income which comes to him in the form of money. For scientific purposes it would be best that the word income when occurring alone should always mean total real income. But as this plan is inconsistent with general usage we must, whenever there is any danger of misunderstanding, say distinctly whether the term is to be taken in its narrower or its broader use. We shall have to revert again to this class of difficulties, especially in our inquiry as to the causes which determine earnings in different occupations.

Social income.

§ 2. Social Income may be estimated by adding together the incomes of the individuals in the society in question,

[1] In a pamphlet published in 1767 on the typical budget of a London clerk with £50 a year, who is supposed to live on the meanest food and clean his own boots, we find entered a weekly item of 6*d.* for "Shaving, and Combing a Wig twice."

whether it be a nation or any other larger or smaller group of persons. But to reckon it directly is for most purposes simplest and best. Everything that is produced in the course of a year, every service rendered, every fresh utility brought about is a part of the national income. Of course the value of things consumed in the process of production must be deducted from the gross produce, in order to find the net produce. For instance deductions must be made for the value of raw material used, and for the depreciation of fixed capital; but interest on borrowed capital, and wages of hired labour may be counted on the understanding that the services to which they correspond are not entered as separate items[1].

Net income of an individual,

§ 3. The term NET INCOME is however often used in a very narrow sense in which the net income of any individual business is that which remains from the gross produce after deducting all the necessary outgoings, that is the wages, price of raw material, interest, depreciation and insurance on capital, and other expenses, which the undertaker is compelled to pay. The price of the necessaries of his own efficiency might logically be deducted also, but as this would be contrary to custom it must be taken not to be done unless special mention is made of it.

and of a society.

The term net produce or income of any social group (when not otherwise specially explained) may be taken to be that which remains from the gross produce after replacing material capital and supplying all that is necessary to sustain the numbers and efficiency of the population, or rather of those classes of them that are engaged in production. It may be reckoned for any length of time, but practically the estimate is of little value unless it covers a period sufficiently long to allow for the accidents of trade and the fluctuations of prosperity.

[1] Thus if *A* hires *B* as a private secretary, we must count *A*'s full income as well as *B*'s salary to get the national income; for the payment *A* makes to *B* is for those services which he elects to take as part of his income. But if *A* makes an allowance to his son *C*, *C*'s income is not to be counted unless a corresponding amount is deducted from *A*'s. For *C* renders no services to *A* for it; *A* simply transfers part of his income to *C*. This principle is followed in income tax assessments.

Some economists speak of the growth of capital when they mean the growth of wealth.

§ 4. Much error has been caused by the fact that after defining "capital" more or less narrowly, some economists have glided into treating it as coextensive with accumulated wealth. A striking instance is seen in the important enquiry into the causes which determine the accumulation of wealth, which they have often worded as though it were concerned only with the growth of capital in the more or less narrow sense in which they have defined capital. This inaccuracy has been partly due to the fact that interest is habitually associated with capital; and it has been found convenient to speak of the growth of capital as influenced by the rate of interest. But really the substance of the argument was the influence on the accumulation of wealth exercised by the benefits which the possession of wealth gives, whether the wealth was in those forms which they had classed as capital or not. This then is one of the few cases in which the evils of coining a new economic term seem to be outweighed by its advantages.

Corresponding to *interest* of capital is *usance* of wealth.

The benefits which the owner of wealth derives from it may be called the USANCE OF WEALTH. They include as a special case the money income which is derived from capital and is called INTEREST; and this is most easily measured when it takes the form of a payment made by a borrower for the use of a loan for, say, a year; it is then expressed as the ratio which that payment bears to the loan.

Profits.

Deferring a further discussion of this subject till we come to consider the causes which determine the Growth of Wealth, we may briefly say here that when a man is engaged in business, his PROFITS for the year are the excess of his receipts from his business during the year over his outlay for his business; the difference between the value of his stock and plant at the end and at the beginning of the year being taken as part of his receipts or as part of his outlay, according as there has been an increase or decrease of value. What remains of his profits after deducting interest on his capital at the current rate may be called his EARNINGS OF UNDERTAKING or MANAGEMENT.

Earnings of Management.

Rent.

The income derived from the ownership of land is commonly called RENT, and the term is stretched so as to include

that derived from letting houses, and even such things as boats, pianos, and sewing machines. In a much narrower use the term has been applied specially to the annual income derived from those free gifts of nature which have been appropriated. But this use again has been gradually extended until it includes the income derived from things of all kinds of which the supply is limited and cannot be increased by man's action. This we may take to be now established as the scientific use of the term, though it is not free from difficulties, as we shall see hereafter; and we cannot dispense entirely with the use of the term in its broader popular sense[1].

National income is a better measure of general economic

§ 5. The money income of a nation gives a measure of its economic prosperity, which, untrustworthy as it is, is yet in some respects better than that afforded by the money value of its accumulated wealth[2]. For income con-

[1] Further difficulties connected with the use of these terms may be deferred for the present. One of them arises from the fact that in some cases earnings of management and interest on capital together fall short of full profits by the equivalent of the trouble and risks involved in borrowing and lending. Others are connected with the effects on the real rate of interest paid which are due to a change in the purchasing power of money between the date at which the loan was contracted and the date at which it is repaid; and others again are connected with the increase in the nominal value of land and other sources of income which are due to a fall in the rate of interest.

[2] All estimates of a nation's richness based on a mere money measure are necessarily misleading, chiefly for the reasons which have been indicated in the chapter on wealth and the present chapter. But since they are frequently made, it may be well to point out that even if we agree for any special purpose to regard the richness of a nation as represented by its money income the question which of two nations is richer than another is still ambiguous. Is the richness of a nation to be measured by the aggregate money income of its inhabitants or by their average income? If the former, India is richer than Holland; if the latter, Holland is far richer than India. The latter is generally the more important measure for the purposes of the student of social science, the former for those of the diplomatist. If, however, we are considering a nation's power of bearing a long continued financial strain of war, we may measure its richness roughly by the excess of the sum total of the incomes of its inhabitants over what is required to supply them with the necessaries of life. A rough notion of the economic strength of a nation, for the purpose of comparison with that of others, may be got by multiplying the aggregate income of its inhabitants by their average income.

The addition that an immigrant makes to the riches of a country may on the same plan be estimated as the excess of the total discounted value of the income he will earn over that which will be required for his own support. This estimate gives results not very different from that got on the plan of estimating the

prosperity than national wealth.

sists chiefly of commodities in a form to give pleasure directly; while the greater part of national wealth consists of the means of production, which are of service to the nation only in so far as they contribute to producing commodities ready for consumption. And further, though this is a minor point, consumable commodities being more portable have more nearly uniform prices all the world over: the prices of an acre of good land in Illinois and in Kent differ more than those of a bushel of wheat in the two places.

But if we look chiefly at the income of a country we must allow for the depreciation of the sources from which it is derived. More must be deducted from the income derived from a house if it is made of wood, than if it is made of stone; a stone house counts for more towards the real richness of a country than a wooden house which gives equally good accommodation. Again a mine which yields for a time a large income, but will be exhausted in a few years, must be counted as equivalent to a field, or a fishery, which yields a much smaller annual income but will yield that income permanently.

value of immigrants under middle age at the sum of the expenses of rearing and educating them.

BOOK III.

DEMAND OR CONSUMPTION.

CHAPTER I.

INTRODUCTORY.

The relation in which the present Book stands to the three following Books.

§ 1. THE older definitions of economics described it as the science which is concerned with the Production, Distribution, Exchange and Consumption of Wealth. Later experience has shown that the problems of Distribution and Exchange are so closely connected, that it is doubtful whether anything is to be gained by the attempt to keep them separate: and in the present treatise they are discussed together in the Sixth Book under the common title of Value. There is however a good deal of general reasoning with regard to the relation of Demand and Supply which is required as a basis for the practical problems of Value, and which acts as an underlying backbone giving unity and consistency to the main body of economic reasoning. Its very breadth and generality mark it off from the more concrete problems of Distribution and Exchange to which it is subservient; and therefore it is put together in a separate Book on "The general Theory of Demand and Supply" introductory to that on Value. Preparing the way for that Book are two Books respectively on "Demand or Consumption," and on "Production or Supply."

§ 2. The latter of these two Books corresponds in general character to that discussion of Production to which a large place has been given in nearly all English treatises on general economics during the last two generations; although its relation to the problems of Demand and Supply has not

BOOK III. CH. I.

Very little attention has been paid till recently to the subject of Demand or Consumption.

been made sufficiently clear. But until recently the subject of Demand or Consumption has been neglected; the prominent place which Consumption has received in the programme of the science has not been justified by any attempt to examine it carefully[1]. Nor has this neglect been altogether accidental. For important as is the inquiry how to turn our resources to the best account, it is not one which lends itself, so far as the expenditure of private individuals is concerned, to the methods of economics. The common sense of a person who has had a large experience of life will give him more guidance in such a matter than he can gain from subtle economic analyses; and until recently economists said little on the subject, because they really had not much to say that was not the common property of all sensible people. But recently several causes have combined to give the subject a greater prominence in economic discussions.

But several causes are now bringing it into greater prominence.

The first cause.

The first of these is the growing belief that harm was done by Ricardo's habit of speaking of the exchange value of a thing as though it were determined exclusively by the difficulty of producing it. Although he and his chief followers were aware that the conditions of demand played as important a part as those of supply in determining value, yet they did not express their meaning with sufficient clearness, and they have been misunderstood by all but the most careful readers.

The second cause.

Secondly, the growth of exact habits of thought in economics is making people more careful to state distinctly the premises on which they reason. This increased care is partly due to the application by some writers of mathematical language and mathematical habits of thought. It is doubtful whether much has been gained directly by the use of complex mathematical formulæ. But the application of mathematical habits of thought has been of great service; for it has led people to refuse to consider a problem until they are quite sure what the problem is; and to insist on knowing

[1] James Mill indeed called a large part of his "Elements of Political Economy" by the title "Consumption," but it is really occupied almost exclusively with an inquiry into the principles of Taxation.

what is, and what is not intended to be assumed, before proceeding further. This has in its turn compelled a more careful analysis of all the leading conceptions of economics, and especially of demand; for the mere attempt to state clearly how the demand for a thing is to be measured opens up new aspects of the main problems of economics. And though the theory of demand is yet in its infancy, we can already see that it may be possible to collect and arrange statistics of consumption in such a way as to throw light on difficult questions of great importance to public well-being.

The third cause.

Lastly, the spirit of the age induces a closer attention to the question whether our increasing wealth may not be made to go further than it does in promoting the general well-being; and this again compels us to examine how far the exchange value of any element of wealth, whether in collective or individual use, represents accurately the addition which it makes to happiness and well-being.

Such are the inquiries towards which the present Book is designed to point the way[1].

[1] Jevons (*Theory of Political Economy*, 1871) has done more than any one else to foster the growth of a widely-spread interest in this aspect of economic science; though unknown to himself he had been anticipated in many of his best thoughts by Cournot (*Recherches sur les Principes Mathématiques de la Théorie des Richesses*, 1838, and by Gossen (*Entwickelung der Gesetze des menschlichen Verkehrs*, 1854). In the same year, 1871, in which Jevons' *Theory* appeared, Dr Karl Menger published the first part of his *Grundsätze der Volkswirthschaftslehre*, which, though not making use of mathematical language, is distinctly mathematical in tone, and appears to be in some respects, though not in all, further advanced than Jevons' work. A mathematical tone is even more clearly pronounced, though the use of mathematical formulæ is still avoided, in Dr Böhm-Bawerk's *Grundzüge des wirtschaftlichen Güterwerts* (1886), which may be regarded as a continuation of the works of Jevons and Menger, but especially the latter. M. Walras has published from 1874 downwards a series of interesting economic inquiries, in which a free use is made of mathematical formulæ, and his example has been followed by Dr Launhardt and others. A bibliography of mathematical writings on economics is appended to the second edition of Jevons' *Theory*.

CHAPTER II.

THE LAW OF DEMAND.

Human wants and desires are various, but few of them are altogether incapable of measurement.

§ 1. HUMAN wants and desires are countless in number and very various in kind. As we have seen[1], the highest of them cannot generally be weighed in the balance; a virtuous man's desire to follow the path of duty is one against which no inducement can prevail; the economist has to take it as an ultimate fact, which though of vital consequence for his work, is not one on which his special methods of reasoning will throw any additional light. But even when the desire to do one's duty supplies the leading motive to action the necessities of the case may impose a measurable limit on its gratification: the outlay which parents make for the education of their children is prompted by their desire to do right, but yet it is so conditioned and limited by their circumstances, that fairly definite statements can be made as to the prices which parents in different grades are willing to pay for different kinds of

[1] Compare Book I. Ch. VI. *On Economic Motives.* Hermann (*Staatswirthschaftliche Untersuchungen*, Ch. II.) classified wants as "absolute and relative, higher and lower, urgent and capable of postponement, positive and negative, direct and indirect, general and particular, constant and interrupted, permanent and temporary, ordinary and extraordinary, present and future, individual and collective, private and public." And even this long list of divisions might be extended. The adult reader may perhaps be left to think out the details of such classifications for himself. But this opportunity may be taken of noticing that Hearn's *Plutology* is an admirable example of the way in which analytical work of this kind may be made to afford a training of a very high order for the young, and to give them an intelligent acquaintance with the economic conditions of life, without forcing upon them any particular solution of those more difficult problems on which they are not yet able to form an independent judgment.

education. Nearly all actions of life are governed, at least in part, by desires the force of which can be measured by the sacrifice which people are willing to make in order to secure their gratification: this sacrifice may take many forms, and as has already been observed even the mode in which it is measured may not be the same in other worlds that it is in ours. But in our world it has nearly always consisted of the transfer of some definite material thing which has been agreed upon as the common medium of exchange, and is called "money." The purchasing power of this money may vary from time to time; but in these early stages of our work we assume it to be constant[1].

Desirability or utility as measured by price,

Thus then the desirability or utility of a thing to a person is commonly measured by the money price that he will pay for it. If at any time he is willing to pay a shilling, but no more, to obtain one gratification; and sixpence, but no more, to obtain another; then the utility of the first to him is measured by a shilling, that of the second by sixpence; and the utility of the first is exactly double that of the second.

account being taken of people's means

But even for the same person a shilling may measure a greater pleasure at one time than at another; because money may be more plentiful with him, or because his sensibility to pleasure may be different at different times[2]. And to different persons the same piece of money affords the means of pleasures of very different intensities.

and of their individual characters.

For even two people whose antecedents are similar and who appear to be like one another in every respect will yet be affected in different ways by the same events. When, for instance, a band of city school children are sent out for a day's holiday in the country, it is probable that no two of them derive from it enjoyment exactly the same in kind, or equal in intensity. The same surgical operation causes different amounts of pain to different people. Of two parents who are, so far as we can tell, equally affectionate, one will suffer much more than the other from the loss of a favourite

[1] Corresponding to the movement of the "mean sun" of astronomers. See Book I. Ch. I. § 5.

[2] Compare Mr Edgeworth's *Mathematical Psychics*.

son. Some who are not very sensitive generally are yet specially susceptible to particular kinds of pleasure and pain; while differences in nature and education make one man's total capacity for pleasure or pain immensely greater than another's. So that it is not at all safe to say that two men with the same income derive equal pleasure from its use[1]; or that they would suffer equal pain from the same diminution of it. Although when a tax of £1 is taken from each of two persons having an income of £300 a year, each will give up that £1 worth of pleasure which he can most easily part with, i.e., each will give up pleasure that is measured to him by just £1; yet the intensities of the pleasure given up may not be nearly equal.

But such differences as these may generally be neglected when we consider the average of large numbers of people.

§ 2. Nevertheless, if we take averages sufficiently broad to cause the personal peculiarities of individuals to counterbalance one another, the money which people of equal incomes will give to obtain a pleasure or avoid a pain is an extremely accurate measure of the pleasure or the pain. If there are a thousand persons living in Sheffield, and another thousand in Leeds, each with about £200 a year, and a tax of £1 is levied on all of them, we may be sure that the loss of pleasure which the tax will cause in Sheffield is almost exactly equal to that which it will cause in Leeds: and similarly anything that increased all the incomes by £1 would give command over almost exactly the same amount of additional pleasure in the two towns.

And in fact it happens that by far the greater number of the events with which economics deals affect in about equal proportions all the different classes of society; so that if the money measures of the happiness caused by two events are equal, there is not in general any very great difference between the amounts of the happiness in the two cases. If however it should appear that the class affected in the one case is on the average, say, ten times as rich as in the other, then we shall probably not be far wrong in supposing that the increment of happiness measured by a given sum of

[1] Compare Bentham's *Principles of Morals and Legislation*, Chapter VI.; also Mr Edgeworth's "*New and Old Methods of Ethics*."

money in the one case is, so far at least as its direct results go, about one-tenth as great as in the other[1].

A distant pleasure generally affords a weaker motive than one close at hand.

§ 3. So far we have considered only present gratifications; but even greater differences are found in the estimates which different people form of distant or deferred pleasures. One person will reckon a pleasure, which he anticipates at some distance of time, at nearly the same value which it would have for him if it were present or immediate; while another who has less power of realizing the future, less patience and self-control, will care comparatively little for any pleasure that is not near at hand. Thus the savage can hardly be induced to take the smallest trouble to fence in crops which a few months later might save him from the pains of extreme hunger; the ignorant navvy will often spend the earnings of a prosperous time in ways that give him no pleasure to be compared to what he will suffer when his work is slack and he has no fund to fall back on. And at the opposite extreme the miser goes without ordinary comforts in order to accumulate wealth which he will never bring himself freely to enjoy. But the great body of sensible people in a civilized country estimate a future pleasure at a lower, though not a much lower, value than if it were present: they *discount the future* at a moderate rate[2].

The rates at which different people discount the future affect not only their tendency to save as the term is ordinarily understood, but also their tendency to buy things which will be a lasting source of pleasure rather than those which give a stronger but more transient enjoyment; to buy a new coat rather than to indulge in a drinking bout, or to choose simple furniture that will wear well, rather than showy furniture that will soon fall to pieces.

The uncertainty of an anticipated pleasure as affecting its "discounted" value.

As Bentham says, we must consider the "duration" and "intensity" of a pleasure and its "propinquity" or the nearness of the time at which it is expected; and further we

[1] See below Book III. Ch. IV. § 2.

[2] If a person would just pay 9*s*. for the certainty of a gratification a year hence, which if it were present he would value at 10*s*. then he may be said to discount future pleasures at the rate of ten per cent. a year: if he would only give 8*s*. for it, then he discounts the future at twenty per cent., and so on.

BOOK III. CH. II.

must take account of the "certainty" with which it is anticipated. The less that certainty is, the less is the value of the pleasure, and with every diminution of the certainty the value of the pleasure diminishes in like proportion[1]. Every commodity that is not consumed in a single use, is the probable source of many pleasures, more or less remote; and its value to a purchaser is the aggregate of the value to him of all these pleasures, allowance being made for their uncertainty and for their distance[2].

The basis of the law of Demand, an illustration.

§ 4. We may now look more closely at the relation in which a person's demand for a thing stands to the price at which he can obtain it. It will be best to take our first illustration from the demand for such a commodity as tea, which can be purchased in small quantities. Suppose, for instance, that tea of a certain quality is to be had at 2*s.* per lb. A person might be willing to give 10*s.* for a single pound once a year rather than go without it altogether; while if he could have any amount of it for nothing he would perhaps not care to use more than 30 lbs. in the year. But as it is, he buys perhaps 10 pounds in the year; that is to say, the difference between the happiness which he gets from buying 9 lbs. and 10 lbs. is just enough for him to be willing to pay 2*s.* for it: while the fact that he does not buy an eleventh pound shews that he does not think that it would

[1] If the probability that a pleasure will be enjoyed is three to one, so that three chances out of four are in its favour, the value of its expectation is three-fourths of what it would be if it were certain: if the probability that it will accrue were only seven to five, so that only seven chances out of twelve are in its favour, the value of its expectation is only seven-twelfths of what it would be if the event were certain, and so on. If the anticipated pleasure is both uncertain and distant we have a twofold deduction to make from its full value. We will suppose, for instance, that a person would give 10*s.* for a gratification if it were present and certain, but that it is due a year hence, and the probability of its happening then is three to one. Suppose also that he discounts the future at the rate of twenty per cent. per annum. Then the value to him of the anticipation of it is $\frac{3}{4} \times \frac{5}{6} \times 10s.$ i.e. 6*s.* Compare the Introductory chapter of Jevons' *Theory of Political Economy*.

[2] It must be understood however that the separate measurement of each element of a pleasure is in practice done roughly by a sort of instinct. The only measurement with which science can directly deal is that afforded by what a person is willing to sacrifice (whether money, or some other commodity, or his own labour) in order to obtain the aggregate of pleasures anticipated from the possession of the thing itself. But see note I. in the Appendix.

be quite worth an extra 2*s.* to him. That is, 2*s.* a pound measures the utility to him of the tea which lies at the margin or terminus or end of his purchases; it measures the MARGINAL or FINAL UTILITY of tea to him[1]. The relation in which this stands to the whole benefit that he gets from the tea, or its TOTAL UTILITY, will be considered further on.

Marginal or Final Utility, and Total Utility.

§ 5. It is an almost universal law that each several want is limited, and that with every increase in the amount of a thing which a man has, the eagerness of his desire to obtain more of it diminishes; until it yields place to the desire for some other thing, of which perhaps he hardly thought, so long as his more urgent wants were still unsatisfied. There is an endless variety of wants, but there is a limit to each separate want.

Any particular want is generally satiable.

This law has indeed some apparent exceptions: the more pictures or books a man has the stronger is his taste for them likely to become, and the more is he likely to spend on them: avarice and ambition are often insatiable; the virtue of cleanliness and the vice of drunkenness alike grow on what they feed upon. But in such cases our observations range over some period of time; and the man is not the same at the beginning as at the end of it. If we take a man as he is, without allowing time for any change in his character, the marginal utility of a thing to him diminishes steadily with every increase in his supply of it. This important fact may go by the name of the LAW OF THE DIMINUTION OF MARGINAL OR FINAL UTILITY[2].

The law of the Diminution of marginal utility.

So far we have taken no account of changes in the marginal utility to him of money, or general purchasing power. For at one and the same time, his material resources being unchanged, the marginal utility of money to him is a fixed

[1] Jevons adopted the latter of these terms. But the former seems preferable on account of the close relation in which, as we shall see presently, marginal utility stands to marginal cost of production. The term marginal utility is in correspondence with the German term *Grenz-nutz*.

[2] See note II. in Appendix. It may be noticed that a person might be willing to pay only at a lower rate for a piece of a carpet insufficient for his room, than for one which would cover the whole of it. Cases of this kind are of no immediate concern for us; but they have some little interest in connexion with the analogy, which we shall presently discuss, between the Law of Diminishing Utility and the Law of Diminishing Return.

quantity, so that the prices he is just willing to pay for two commodities are to one another in the same ratio as the utility of those two commodities. But other things being equal, the richer he becomes, the less is the marginal utility of money to him; every increase in his resources increases the price which he is willing to pay for any given pleasure. And in the same way every diminution of his resources increases the marginal utility of money to him, and diminishes the price that he is willing to pay for any pleasure[1].

The distribution of a person's means between the gratification of different wants.

§ 6. If a person has a thing which he can put to several uses, he will distribute it between these uses in such a way that it has the same marginal utility in all. For if it had a greater marginal utility in one use than another, he would gain by taking away some of it from the second use and applying it to the first.

The same price measures equal utilities at the margin of each purchase.

A special instance of this is the case of money. If he is spending so much money on one thing that he gets comparatively little pleasure from his last purchases of it, he will decline to extend them further, and apply his means to purchasing something else which has a higher marginal utility in proportion to its price. Unless therefore he has made a casual blunder in his choice of things to be bought, he so distributes his money among different purchases that the marginal utility of each is proportional to the price he pays for it.

This result is indeed only another way of saying that the price which he is only just willing to pay for a thing (having regard to the amount of it already in his possession) measures and is therefore proportional to its utility to him; or again it can be deduced from the general doctrine that everyone will try so to use what he has as to make it afford him the greatest possible total pleasure[2].

The Demand Schedule.

§ 7. When we say that a person's demand for anything increases we mean that he will buy more of it than he would before at the same price, and that he will buy as

[1] See note III. in Appendix.

[2] Gossen, Jevons and others have applied the mathematical theories of maxima and minima to prove a great many propositions of this class. But they are perhaps too obvious to require elaborate proof.

much of it as before at a higher price. This is enough for most practical purposes, for we seldom want to know all about a person's demand for a thing. But if we did, we should have to ascertain how much of it he would be willing to purchase at each of the prices at which it is likely to be offered; and the complete circumstances of his demand for, say, tea can be best expressed by a SCHEDULE of the prices which he is willing to pay for different amounts of it.

Thus for instance we may find that he would buy

6	lb.	at the price of	50*d.*	per lb.
7	,,	,,	40	,,
8	,,	,,	33	,,
9	,,	,,	28	,,
10	,,	,,	24	,,
11	,,	,,	21	,,
12	,,	,,	19	,,
13	,,	,,	18	,,

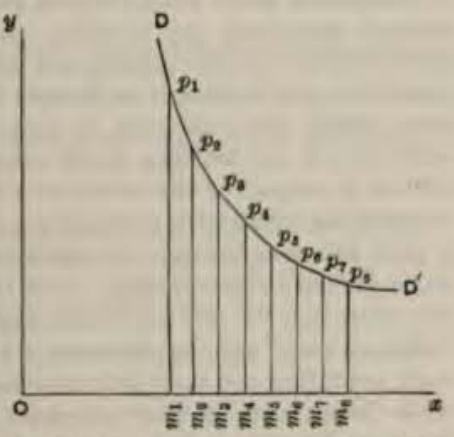
If corresponding prices were filled in for all intermediate amounts we should have an exact statement of his demand[1].

We see then that a person's demand for a thing is inde-

[1] Such a demand schedule may be translated, on a plan now coming into familiar use, into a curve that may be called his DEMAND CURVE. Let Ox and Oy be drawn the one horizontally, the other vertically. Let an inch measured along Ox represent 10 lb. of tea, and an inch measured along Oy represent 40*d.* Take

Fig. (1).

Tenths of an inch.			Fortieths of an inch.
$Om_1=6$	, and	draw	$m_1p_1=50$
$Om_2=7$	,,	,,	$m_2p_2=40$
$Om_3=8$	,,	,,	$m_3p_3=33$
$Om_4=9$	,,	,,	$m_4p_4=28$
$Om_5=10$	,,	,,	$m_5p_5=24$
$Om_6=11$	,,	,,	$m_6p_6=21$
$Om_7=12$	,,	,,	$m_7p_7=19$
$Om_8=13$	,,	,,	$m_8p_8=18$



m_1 being on Ox and m_1p_1 being drawn vertically from m_1; and so for the others. Then $p_1p_2 \ldots p_8$ are points on his Demand Curve for tea; or as we may say DEMAND POINTS. If we could find demand points in the same manner for every possible quantity of tea we should get the whole continuous curve DD' as shewn in the figure.

The meaning of the term *an increase of demand.*

terminate so long as nothing is said as to the price at which the thing is to be had. There is no use in trying to measure his demand as some writers have done merely by the "amount he is willing to buy" or merely by the "intensity of his eagerness to buy a certain amount." Nothing is gained by representing a notion, which is really complex, as though it were simple. Wherever precision is required, we must speak of a person's demand for a thing as represented by the schedule of the prices at which he is willing to buy different amounts of it[1]. An increase in his demand for the commodity means an increase throughout the whole schedule in the prices at which he is willing to purchase different amounts of it; and we may sometimes find it convenient to speak of this as a *raising of the demand schedule*[2].

[1] Thus Mill says that we must "mean by the word demand, the quantity demanded, and remember that this is not a fixed quantity, but in general varies according to the value." *Principles*, Book III. Ch. II. § 4). This account is scientific in substance; but it is not clearly expressed and it has been much misunderstood. Cairnes prefers to represent "demand as the desire for commodities and services, seeking its end by an offer of general purchasing power, and supply as the desire for general purchasing power seeking its end by an offer of specific commodities or services." He does this in order that he may be able to speak of a ratio, or equality, of demand and supply. But the quantities of two desires on the part of two different persons cannot be compared directly; their measures may be compared, but not they themselves. And in fact Cairnes is himself driven to speak of supply as "limited by the quantity of specific commodities offered for sale, and demand by the quantity of purchasing power offered for their purchase." But sellers have not a fixed quantity of commodities which they offer for sale unconditionally at whatever price they can get: buyers have not a fixed quantity of purchasing power which they are ready to spend on the specific commodities, however much they pay for them. Account must then be taken in either case of the relation between quantity and price, in order to complete Cairnes' account, and when this is done it is brought back to the lines followed by Mill. He says, indeed, that "Demand, as defined by Mill, is to be understood as measured, not, as my definition would require, by the quantity of purchasing power offered in support of the desire for commodities, but by the quantity of commodities for which such purchasing power is offered." It is true that there is a great difference between the statements, "I will buy twelve eggs," and "I will buy a shilling's worth of eggs." But there is no substantive difference between the statement, "I will buy twelve eggs at a penny each, but only six at three halfpence each," and the statement, "I will spend a shilling on eggs at a penny each, but if they cost three halfpence each I will spend ninepence on them." But while Cairnes' account when completed becomes substantially the same as Mill's, its present form is even more misleading. (See an article by the present writer on *Mill's Theory of Value* in the *Fortnightly Review* for April, 1876.)

[2] Geometrically it is represented by raising the demand curve, or, what comes to the same thing, moving it to the right, with perhaps some modification of its shape.

The demand on the part of any individual for some things is discontinuous.

In a commodity like tea, which can be purchased in small quantities, every variation in price is likely to affect the amount consumed by an individual. But there are many commodities—such as hats—the demand for which on the part of any single individual cannot vary continuously with every small change in price, but can change only by great leaps. A small fall in the price of hats will not affect the action of everyone, but it will induce a few persons, who were in doubt whether to get a new hat or not, to decide in favour of doing so.

But the aggregate demand of a great many persons has a continuous schedule, showing a fall of demand price corresponding to every increase in the quantity demanded.

Thus every fall however slight in the price of a commodity in general use, will, other things being equal, increase the total sales of it. And therefore if we had the requisite knowledge we could make a schedule of prices at which each amount of it could find purchasers in a given place during, say, a year. The total demand in the place for, say tea, is the sum of the demands of all the individuals there. Some will be richer and some poorer than the individual consumer whose demand schedule we have just written down, some will have a greater and others a smaller liking for tea than he has. Let us suppose that there are in the place a million purchasers of tea, and that their average consumption is equal to his at each several price. Then the demand of that place is represented by the same schedule as before, if we write a million pounds of tea instead of one pound[1].

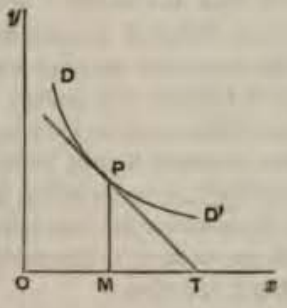
The Law of Diminution of Marginal

There is then one law and only one law which is common to all demand schedules, viz. that the greater the amount to be sold the smaller will be the price at which it will find

[1] And the demand is represented by the same curve as before, only an inch measured along Ox now represents ten million pounds instead of ten pounds.

A formal definition of the Demand curve may be given thus:—The demand curve for any commodity in a market during any given unit of time is the locus of demand points for it. That is to say, it is a curve such that if from any point P on it, a straight line PM be drawn perpendicular to Ox, PM represents the price at which purchasers will be forthcoming for an amount of the commodity represented by OM.

Fig. (2).



purchasers; or in other words, as the numbers in the left hand columns increase, those in the right hand column diminish[1]. Subject to this one condition, demand schedules have every variety of form.

Demand-price.

The influence on demand of the growth of a rival commodity.

§ 8. It must be remembered that the demand schedule gives the prices at which various quantities of a thing can be sold in a market during a given time and under given conditions. If the conditions vary in any respect the figures of the schedule will probably require to be changed. One condition which it is especially important to watch is the price of rival[2] commodities, that is, of commodities which can be used as substitutes for it. For instance, the demand schedule for tea is drawn out on the assumption that the price of coffee is known; but a failure of the coffee harvest would raise the prices throughout the demand schedule for tea.

Consumer's demand and trader's demand.

We have so far been looking at demand chiefly from the point of view of the ultimate consumer. But, as we shall see more clearly hereafter, the same law applies to the trade demand for things which are to be sold again or are to be used in making other things that are to be sold. An apparent objection arises from the facts that when a thing is falling in price dealers often contract their purchases in the fear of a further fall; that when the price is rising they often buy largely in the hope of securing the benefit of a

[1] That is, if a point moves along the curve away from Oy it will constantly approach Ox. Therefore if a straight line PT be drawn touching the curve at P and meeting Ox in T, the angle PTx is an obtuse angle. It will be found convenient to have a short way of expressing this fact; which may be done by saying that PT is INCLINED NEGATIVELY. Thus the one universal rule to which the Demand curve conforms is that it is *inclined negatively* throughout the whole of its length.

[2] Or to use Jevons' phrase (*Theory of Political Economy*, Ch. IV.), commodities that are nearly "equivalent." The question where the lines of division between different commodities can be drawn must be settled by the convenience of the particular question under discussion. For some purposes it may be best to regard Chinese and Indian teas, or even Souchong and Pekoe teas as different commodities; and to have a separate demand schedule for each of them. While for other purposes it may be best to group together commodities as distinct as beef and mutton, or even as tea and coffee, and to have a single schedule to represent the demand for the two combined; but in such a case of course some convention must be made as to the number of ounces of tea which are taken as equivalent to a pound of coffee.

further rise; and that speculative purchases of this kind have a very great effect on the temporary fluctuations of prices. But this is not really an exception to the rule: it only illustrates the way in which the expectation of a fall in price will often diminish people's eagerness to buy a thing at the present price; they will prefer to wait till the price has come down. Apparent exceptions of this kind are a source of difficulty in the theory of market disturbances: but they have no real bearing on the relation between demand and price in a steady market; and looking only at normal and average results we find that the cheaper a thing can be sold, the larger will be the purchases of it by private consumers; and therefore traders will buy the more of it, in the long run, the cheaper they can get it.

The element of time.

Later on we shall have to examine the lagging behind of that increased consumption of anything which is sure, other things being equal, to result from a fall in its wholesale price. This lagging behind has many curious effects, some of which are of great practical importance. But at the present stage we may neglect them; and assume that changes in the demand price of a thing will follow instantly on changes in the amount of it offered for sale; and that the demand price for any particular amount which is being offered for sale will always be that price which is set against that amount in the demand schedule representing the normal relations of the market[1].

[1] Discussions kindred to those in the present chapter are to be found in Jevons, *Theory*, Ch. II. III.; Menger, *Volkswirthschaftslehre*, Ch. II., and Böhm-Bawerk, *Grundzüge*, II. iv.

CHAPTER III.

ELASTICITY OF DEMAND.

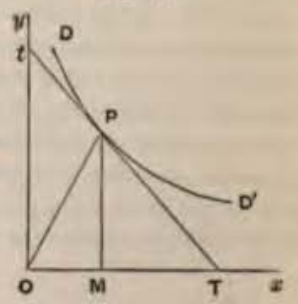
Definition of *Elasticity of demand.*

§ 1. WE have seen that the only universal law as to a person's desire for a commodity is that it diminishes, other things being equal, with every increase in his supply of that commodity. But this diminution may be slow or rapid. If it is slow the price that he will give for the commodity will not fall much in consequence of a considerable increase in his supply of it; and a small fall in price will cause a comparatively large increase in his purchases. But if it is rapid, a small fall in price will cause only a very small increase in his purchases. In the former case his willingness to purchase the thing stretches itself out a great deal under the action of a small inducement: the elasticity of his demand, we may say, is great. In the latter case the extra inducement given by the fall in price causes hardly any extension of his desire to purchase: the elasticity of his demand is small.

And as with the demand of one person so with that of a whole market. The ELASTICITY OF DEMAND in a market is great or small according as the amount demanded increases much or little for a given fall in price, and diminishes much or little for a given rise in price[1].

[1] Speaking more exactly we may say that the elasticity of demand is one if a fall of one per cent. in price will make an increase of one per cent. in the amount demanded; that it is two or a half if a fall of one per cent. in price makes an increase of two or one half per cent. respectively in the amount demanded; and so on. The elasticity of demand can be best traced in the demand curve with the aid of the following rule. Let a straight line touching the curve at any point P meet Ox in T and Oy in t, then *the measure of the elasticity at the point P is the ratio of PT to Pt.*

Fig. (3).



§ 2. The price which is so high relatively to the poor man as to be almost prohibitive, may be scarcely felt by the rich; the poor man for instance never tastes wine, but the very rich man may drink as much of it as he has a fancy for, without giving himself a thought of its cost. We shall therefore get the clearest notion of the law of the elasticity of demand, by considering one class of society at a time. Of course there are many degrees of richness among the rich, and of poverty among the poor; but for the present we may neglect these minor subdivisions.

A price which is low relatively to the consumption of the rich may be high relatively to that of the poor.

When the price of a thing is very high relatively to any class, they will buy but little of it; and even a very considerable fall in the price will cause no great increase in their consumption, i.e. the elasticity of their demand will be small. But if the price goes on falling they will begin to consume the thing more freely, taking it into ordinary use; and the elasticity of their demand will increase. At last a price is likely to be reached so low that they have got all that they want—a satiety price; and then they will not be induced to increase their consumption much by any further fall: the elasticity of their demand will again have become small. That is to say, the elasticity of their demand is small when the price of a thing is *very high* relatively to their means and again when it is *very low:* while the elasticity is much greater for prices intermediate between what we may call the *high* level and the *low* level.

The general law of variation of the elasticity of demand

This rule appears to hold with regard to nearly all commodities and with regard to the demand of every class; save only that the level at which "very high" prices end and "high" prices begin, is different for different classes and so again is the level at which "low" prices end and "very low" prices begin. There are however many varieties in detail; arising

is consistent with great varieties of detail.

If PT were twice Pt, a fall of 1 per cent. in price would cause an increase of 2 per cent., in the amount demanded; the elasticity of demand would be two. If PT were one-third of Pt, a fall of 1 per cent. in price would cause an increase of $\frac{1}{3}$ per cent. in the amount demanded; the elasticity of demand would be one-third; and so on. Another way of looking at the same result is this:—the elasticity at the point P is measured by the ratio of PT to Pt, that is of MT to MO (PM being drawn perpendicular to Om); and therefore *the elasticity increases wherever the angle TPM increases relatively to the angle OPM.* See Note IV. in Appendix.

chiefly from the fact that there are some commodities with which people are easily satiated, and others—chiefly things used for display—for which their desire is almost unlimited. For the latter the elasticity of demand remains considerable, however low the price may fall, while for the former the demand loses nearly all its elasticity as soon as a low price has once been reached.

This rule that the elasticity is great for medium prices and small for those which are very high or very low is seen most clearly when we select for observation a set of people, who, though sufficiently numerous to prevent individual peculiarities from obtruding themselves, are yet economically homogeneous; i.e., have nearly the same wants and nearly the same means of gratifying them. When we add together the demands of several such sets so as to get the aggregate demand of a larger group, as for instance that of the whole body of the rich, or the whole body of the middle classes, or the whole body of the working classes; our rule does not show itself with so clear an outline, and but faint traces of it remain when we add together the demands of these three groups so as to get the aggregate demand of the whole community[1].

[1] Let us illustrate by the case of the demand for, say, green peas in a town in which all vegetables are bought and sold in one market. Early in the season perhaps 100 lb. a day will be brought to market and sold at 1*s.* per lb., later on 500 lb. will be brought and sold at 6*d.*, later on 1,000 lb. at 4*d.*, later still 5,000 at 2*d.*, and later still 10,000 at 1½*d.* This demand is represented in fig. (4), an inch along Ox representing 5,000 lb. and an inch along Oy representing 10*d.* Then taking

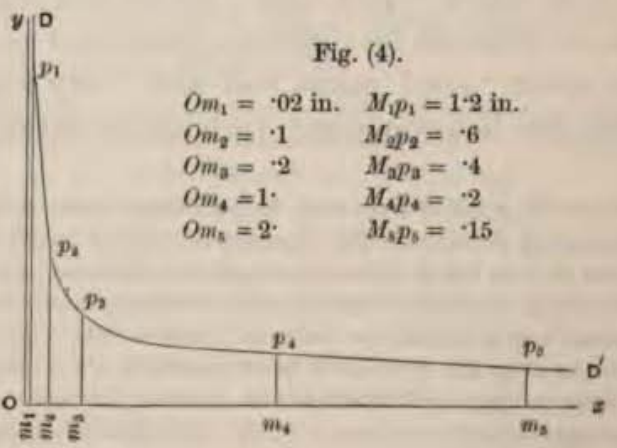


Fig. (4).

Om_1 = ·02 in.	M_1p_1 = 1·2 in.
Om_2 = ·1	M_2p_2 = ·6
Om_3 = ·2	M_3p_3 = ·4
Om_4 = 1·	M_4p_4 = ·2
Om_5 = 2·	M_5p_5 = ·15

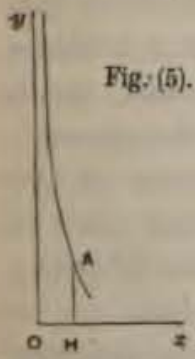
Illustrations drawn from the demand for particular commodities.

§ 3. There are some things the current prices of which in this country are "very low" relatively even to the poorer classes; such are for instance salt, and many kinds of savours and flavours, and also cheap medicines. It is doubtful whether any fall in price would induce a considerable increase in the consumption of these.

and drawing a curve through $p_1 p_2 \ldots p_3$ we get the total demand curve. But this total demand will be made up of the demands of the rich, the middle class and the poor. The amounts that they will severally demand may perhaps be represented by the following schedules:—

At price in pence per lb.	Number of lbs. bought by rich	middle class	poor	total
12	100	0	0	100
6	300	200	0	500
4	500	400	100	1,000
2	800	2,500	1,700	5,000
1½	1,000	4,000	5,000	10,000

Fig. (5).



(Fig. 6).

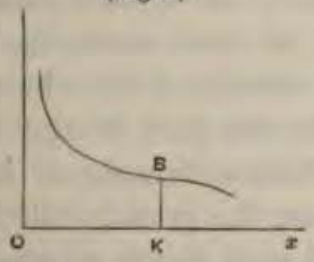
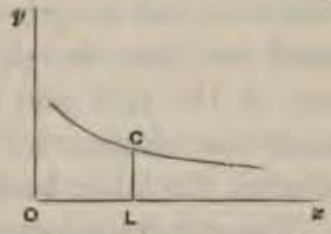


Fig. (7).



These schedules are translated into curves fig. (5), (6), (7), showing the demands of the rich, the middle class and the poor represented on the same scale as fig. (4). Thus for instance AH, BK and CL each of them represents a price of 2*d.* and is ·2 inches in length; OH = ·16 in. representing 800 lb., OK = ·5 in. representing 2,500 lb. and OL = ·34 in. representing 1,700 lbs. while $OH + OK + OL$ = one inch i.e. = Om_4 in fig. 1 as they should do.

This may serve as an example of the way in which several partial demand curves, drawn to the same scale, can be superimposed horizontally on one another to make the total demand curve representing the aggregate of the partial demands.

Looking either at the schedules, or at the curves, we see that the greatest elasticity of demand is somewhere about the price of 5*d.* for the rich, and 3*d.* for the middle class, while for the poor it is about 2*d.*; for the whole market it is somewhere about 3*d.* At the price of 1½*d.* the demands of the rich and middle classes have lost nearly all their elasticity. But the demand of the poor shows signs of remaining elastic even for much lower prices; and since its influence preponderates here, a considerable elasticity is shown by the total demand curve for the lower prices.

The current prices of meat, milk, butter, of wool, of tobacco, of imported fruits, and of ordinary medical attendance, are such that every variation in price makes a great change in the consumption of them by the working classes, and the lower half of the middle classes; but the rich would not much increase their consumption of them[1] however cheaply they were to be had. In other words the demand for these commodities is very elastic on the part of the working and lower middle classes, but not on the part of the rich. But the working class is so numerous that their consumption of such things as are well within their reach is much greater than that of the rich; and therefore the aggregate demand for all things of the kind is very elastic. A little while ago sugar belonged to this class: but its price in England has now fallen so far as to be low relatively even to the working classes, and the demand for it is therefore not elastic.

The current prices of wall-fruit, of the better kinds of fish and other moderately expensive luxuries are such as to make the consumption of them by the middle class increase much with every fall in price; in other words the middle class demand for them is very elastic: while the demands on the part of the rich and on the part of the working class is much less elastic, the former because it is already nearly satiated, the latter because the price is still too high.

The current prices of such things as rare wines, fruit out of season, highly skilled medical and legal assistance, are so high that there is but little demand for them except from the rich: but what demand there is has in most cases considerable elasticity.

The demand for necessaries.

§ 4. The case of necessaries is exceptional. When the price of wheat is very high, and again when it is very low, the demand has very little elasticity: at all events if we assume that wheat, even when scarce, is the cheapest food for man; and that, even when most plentiful, it is not consumed in any other way. We know that a fall in the price

[1] With regard to this group of commodities it is important to remark that the demand of the rich is not here taken to include the demand for the food, etc. which they give their servants.

of a quartern loaf from 6*d.* to 4*d.* has scarcely any effect in increasing the consumption of bread. With regard to the other end of the scale it is more difficult to speak with certainty, because there has been no approach to a scarcity in England since the repeal of the corn laws. But, availing ourselves of the experience of a less happy time, we may suppose that deficits in the supply of 1, 2, 3, 4, or 5 tenths would cause a rise in price of 3, 8, 16, 28, or 45 tenths respectively[1]. Much greater variations in prices indeed than this have not been uncommon. Thus wheat sold in London for ten shillings a bushel in 1335, but in the following year it sold for ten pence.

There may be even more violent changes than this in the price of a thing which is not necessary, if it is perishable and the demand for it is inelastic: thus fish may be very dear one day, and sold for manure two or three days later. But such cases illustrate the theory of market variations of prices rather than that of normal demand.

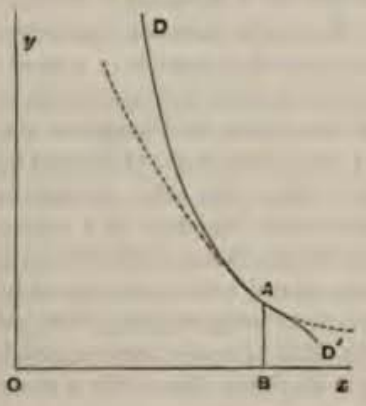
Wheat and other cheap vegetable foods are the only things of which nearly the whole consumption can be regarded as necessary. Some part of the consumption of water, clothing, and house-room is indeed strictly necessary, but there is much of it which could be dispensed with.

Commodities some part of the consumption of which is necessary.

Water is one of the few things the consumption of which we are able to observe at all prices from the very highest down to nothing at all. At moderate prices the demand for it is very elastic. But the uses to which it can be put are

[1] This is the famous estimate quoted by Gregory King. It is represented in fig. (8) by the curve *DD'*, the point *A* corresponding to the ordinary price. If we take account of the fact that where the price of wheat is very low, it may be used, as it was for instance in 1834, for feeding cattle and sheep and pigs and for brewing and distilling, the lower part of the curve would take a shape somewhat like that of the dotted line in the figure. And if we assume that when the price is very high, cheaper substitutes can be got for it, the upper part of the curve would take a shape similar to that of the upper dotted line.

Fig. (8).



capable of being completely filled: and as its price sinks towards zero the demand for it loses its elasticity. Nearly the same may be said of salt. Its price in England is so low that the demand for it as an article of food is very inelastic: but in India the price is comparatively high and the demand is comparatively elastic[1].

The price of house-room on the other hand has never fallen very low except when a locality is being deserted by its inhabitants. Where the condition of society is healthy, and there is no check to general prosperity, the demand for house-room seems always to have great elasticity.

Clothing falls generally under two heads: some kinds are desired not only for their direct uses, but also as a means of asserting social position. They are to be classed with house-room; the demand for them is insatiable. But the desire for those kinds of clothing which are not used for the purpose of display, is satiable: when their price is low the demand for them has scarcely any elasticity[2].

Difficulties in the way of obtaining the requisite statistics.

§ 5. So far we have assumed the requisite facts to be available: but it will be well to pause a little to consider the difficulties in the way of ascertaining them. This inquiry is important on its own account; and it affords an instructive illustration of the difficulties of interpreting statistics.

Firstly the imperfections of the market

A demand schedule is supposed to present a series of prices at which different amounts of a commodity can find purchasers during a given time in a market; and the first difficulty is to define the market. Theoretically a MARKET is a district, small or large, in which there are many buyers and many sellers all so keenly on the alert and so well acquainted

[1] See Sir J. Strachey's *Finances of India*, Ch. XIII.

[2] We must however remember that the character of the demand schedule for any commodity depends in a great measure on whether the prices of its rivals are taken to be fixed or to alter with it. If we separated the demand for beef from that for mutton, and supposed the price of mutton to be held fixed while that for beef was raised, then the demand for beef would become extremely elastic. For any slight fall in the price of beef would cause it to be used largely in the place of mutton and thus lead to a very great increase of its consumption: while on the other hand even a small rise in price would cause many people to eat mutton to the almost entire exclusion of beef. But the demand schedule for all kinds of fresh meat taken together, their prices being supposed to retain always about the same relation to one another, and to be not very different from those now prevailing in England, shows only a moderate elasticity.

with one another's affairs that the price of a commodity is always practically the same for the whole of the district. But the facts seldom correspond exactly to this description. Those who buy for their own consumption, and not for the purposes of trade, are not always on the look out for every change in the market: they have other things to think about. Again the geographical limits of a market are seldom clearly drawn, except when they are marked out by the sea or by custom-house barriers; and it is very difficult to ascertain the amounts even of imported commodities that are being consumed in any artificially defined area, such for instance as the Staffordshire Potteries, or a straggling large town. And no country has accurate statistics of commodities produced in it for home consumption.

and its want of definite boundaries.

Again there is generally some ambiguity even in such statistics as are to be had. They commonly show goods as entered for consumption as soon as they pass into the hands of dealers; and consequently an increase of dealers' stocks cannot easily be distinguished from an increase of consumption. But the two are governed by different causes. A rise of prices tends to check consumption; but if the rise is expected to continue, it will probably, as has already been noticed, lead dealers to increase their stocks[1].

Secondly an increase of dealers' stocks is apt to be mistaken for an increase of consumption.

Next it is difficult to insure that the commodities referred to are always of the same quality. After a dry summer what wheat there is, is exceptionally good; and the prices for the next harvest year appear to be higher than they really are. It is possible to make allowance for this, particularly now that dry Californian wheat affords a standard. But it is almost impossible to allow properly for the changes in quality of many kinds of manufactured goods. This diffi-

Changes of quality.

[1] In examining the effects of taxation, it is customary to compare the amounts entered for consumption just before and just after the imposition of the tax. But this is untrustworthy. For dealers anticipating the tax lay in large stocks just before it is imposed, and need to buy very little for some time afterwards. And vice versâ when a tax is lowered. Again, high taxes lead to false returns. For instance the nominal importation of molasses into Boston increased fiftyfold in consequence of the tax being lowered by the Rockingham Ministry in 1766, from 6*d.* to 1*d.* per gallon. But this was chiefly due to the fact that with the tax at 1*d.*, it was cheaper to pay the duty than to smuggle. See Lecky's *England in the Eighteenth Century*, Vol. III. Ch. XII.

culty occurs even in the case of such a thing as tea: the substitution in recent years of the stronger Indian tea for the weaker Chinese tea has made the real increase of consumption greater than that which is shown by the statistics.

§ 6. The above difficulties arise chiefly from the faultiness of our statistical returns. But there are others the roots of which lie deeper.

Disturbing causes.

Thus the demand schedule represents the changes in the price at which a commodity can be sold consequent on changes in the amount offered for sale, *other things being equal*. But in fact other things seldom are equal over periods of time sufficiently long for the collection of full and trustworthy statistics. There are always occurring disturbing causes whose effects are commingled with, and cannot easily be separated from, the effects of that particular cause which we desire to isolate. This difficulty is aggravated by the fact that in economics the full effects of a cause seldom come at once, but often spread themselves out after it has ceased to exist.

The element of time.

Changes in the purchasing power of money whether permanent,

To begin with, the purchasing power of money is continually changing, and making it necessary to correct the results obtained on our assumption that money retains a uniform value. This difficulty can however be overcome fairly well, since we can ascertain with tolerable accuracy the broader changes in the purchasing power of money.

or temporary;

Next come the changes in the general prosperity and in the total purchasing power at the disposal of the community at large. The influence of these changes is important, but perhaps less so than is generally supposed. For when the wave of prosperity is descending, prices fall, and this increases the resources of those with fixed incomes at the expense of those whose incomes depend on the profits of business. The downward fluctuation of prosperity is popularly measured almost entirely by the conspicuous losses of this last class; but the statistics of the total consumption of such commodities as tea, sugar, butter, wool, &c. prove that the total purchasing power of the people does not meanwhile fall very fast. Still there is a fall, and the allowance to be made for it must be ascertained by comparing

the prices and the consumption of as many things as possible.

and in population and wealth.

Next come the changes due to the gradual growth of population and wealth. For these an easy numerical correction can be made when the facts are known[1].

Gradual changes in habits and in the familiarity with new things and new ways of using them.

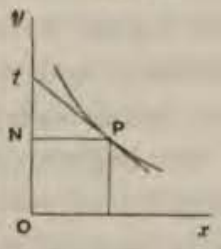
§ 7. Next, allowance must be made for changes in fashion, and tastes and habit; for the opening out of new uses of a commodity, for the discovery or improvement or cheapening of other things that can be applied to the same uses with it. In all these cases there is great difficulty in allowing for the time that elapses between an economic cause and its effect. For time is required to enable a rise in the price of a commodity to exert its full influence on consumption. Time is required for consumers to become familiar with substitutes that can be used instead of it, and perhaps for producers to get into the habit of producing them in sufficient quantities. Time may be also wanted for the growth of habits of familiarity with the new commodities and the discovery of methods of economizing it.

Illustrations.

For instance when wood and charcoal became dear in England, familiarity with coal as a fuel grew slowly, fire-

[1] When a statistical table shows the gradual growth of the consumption of a commodity over a long series of years, we may want to compare the percentage by which it increases in different years. This can be done pretty easily with a little practice. But when the figures are expressed in the form of statistical diagram, it cannot easily be done, without translating the diagram back into figures. And this is a cause of the disfavour in which many statisticians hold the graphic method. But by the knowledge of one simple rule the balance can be turned, so far as this point goes, in favour of the graphic method. The rule is as follows:—Let the quantity of a commodity consumed (or of trade carried, or of tax levied etc.), be measured by horizontal lines parallel to Ox, fig. (9), while the corresponding years are in the usual manner ticked off in descending order at equal distances along Oy. To measure the rate of growth at any point P, put a ruler to touch the curve at P. Let it meet Oy in t, and let N be the point on Oy at the same vertical height as P: then the number of years marked off along Oy by the distance Nt is the inverse of the fraction by which the amount is increasing annually. That is if Nt is 20 years, the amount is increasing at the rate of $\frac{1}{20}$ i.e. of 5 per cent. annually: if Nt is 25 years, the increase is $\frac{1}{25}$ or 4 per cent. annually; and so on. See a paper by the present writer in the Jubilee number of the *Journal of the London Statistical Society*, June 1885; also note V. in the Appendix.

Fig. (9).



places were but slowly adapted to its use, and an organized traffic in it did not spring up quickly even to places to which it could be easily carried by water. The invention of processes by which it could be used as a substitute for charcoal in manufacture went even more slowly, and is indeed hardly yet complete. Again, when in recent years the price of coal became very high, a great stimulus was given to the invention of economies in its use especially in the production of iron and steam. But few of these inventions bore much practical fruit till after the high price had passed away. Again when a new line of tramways or of suburban railways is opened, it takes some time before those who live near the line get into the habit of making the most of its assistance; and a good deal more time elapses before many of those whose places of business are near one end of the line change their homes so as to live near the other end. Again when petroleum first became plentiful few people were ready to use it freely; gradually petroleum and petroleum lamps have become familiar to all classes of society: too much influence would therefore be attributed to the fall in price which has occurred since then, if it were credited with all the increase of consumption.

Some demands can be more easily postponed than others.

Allied to this difficulty is that arising from the fact that there are many purchases which can easily be put off for a short time, but not for a long time. This is often the case with regard to clothes and other things which are worn out gradually, and which can be made to serve a little longer than usual under the pressure of high prices. For instance at the beginning of the cotton famine the recorded consumption of cotton in England was very small. This was partly because retail dealers reduced their stock, but chiefly because people generally made shift to do as long as they could without buying new cotton goods. In 1864 however many found themselves unable to wait longer; and a good deal more cotton was entered for home consumption in that year, though the price was then much higher, than in either of the preceding years. For commodities of this kind then a sudden scarcity does not immediately raise the price fully up to the level which properly corresponds to the reduced

supply[1]. Similarly after the great commercial depression in the United States in 1873 it was noticed that the boot trade revived before the general clothing trade; because there is a great deal of reserve wear in the coats and hats that are thrown aside in prosperous times as worn out, but not so much in the boots.

Some retail dealers have special facilities for obtaining the requisite statistics.

§ 8. Since the difficulties of deducing accurate laws of demand from statistical tables relating to general consumption are so great; since so many of those which at first sight promise to be useful turn out, at all events in the present state of our knowledge, to be useless, it may be worth while to try another route. There is one which at all events avoids most of the difficulties that have just been considered[2].

A shopkeeper in the working man's quarter of a manufacturing town has often the means of ascertaining with tolerable accuracy the financial position of the great body of his customers. He can find out how many factories are at work, and for how many hours in the week, and he can hear about all the important changes in the rate of wages: in fact he makes it his business to do so. And as a rule his customers are quick in finding out changes in the price of things which they commonly use. He will therefore often find cases in which an increased consumption of a commodity is brought about by a fall in its price, the cause acting quickly, and acting alone without any admixture of disturbing causes. Even where disturbing causes are present, he will often be able to allow for their influence. For instance he will know that as the winter comes on, the prices of butter and vegetables rise; but the cold weather makes people desire butter more and vegetables less than before: and therefore when the prices of both vegetables and butter rise towards the winter he will expect a greater falling off of consumption in the case of vegetables than should properly be attributed to the rise in price taken alone, but a less falling off in the case of butter. If however

[1] Unless indeed there is an excited speculation, with perhaps a "corner" in the market for it; and then the movements of its price obey no rule.

[2] Compare Jevons' *Theory of Political Economy*, pp. 11, 12.

in two neighbouring winters his customers have been about equally numerous, and in receipt of about the same rate of wages; and if in the one the price of butter was a good deal higher than the other, then a comparison of his books for the two winters will afford a very accurate indication of the influence of changes in price on consumption[1].

[1] Such a shopkeeper's book affords good opportunities for the application of "the Method of Difference." It may be hoped that, as the knowledge of economic science is diffused, local statistical societies will do important work in this and similar directions. Above all this may be hoped from the great co-operative stores. Shopkeepers who supply other classes of society must occasionally be in a position to furnish similar facts relating to the consumption of their customers. And if a sufficient number of tables of demand by different sections of society could be obtained, they would afford the means of attaining a result which is inaccessible by any other route. For as a general rule the price of a commodity fluctuates within but narrow limits; and therefore statistics afford us no direct means of guessing what the consumption of it would be if its price were either fivefold or a fifth part of what it actually is. But we know that its consumption would be confined almost entirely to the rich if its price were very high; and that, if its price were very low, the great body of its consumption would in most cases be among the working classes. If the present price is very high relatively to the middle or to the working classes, we may be able to infer from the laws of their demand at the present prices what would be the demand of the rich if the price were so raised so as to be very high relatively even to their means. On the other hand if the present price is moderate relatively to the means of the rich, we may be able to infer from their demand what would be the demand of the working classes if the price were to fall to a level which is moderate relatively to their means. It is only by thus piecing together fragmentary laws of demand that we can hope to get any approach to an accurate law relating to widely different prices. (That is to say the general demand curve for a commodity cannot be drawn with confidence except in the immediate neighbourhood of the current price, until we are able to piece it together out of the fragmentary demand curves of different classes of society. Compare the second section of this chapter.)

When some progress has been made in reducing to definite law the demand for commodities that are destined for immediate consumption, then, but not till then, will there be use in attempting a similar task with regard to those secondary demands which are dependent on these—the demands namely for the labour of artisans and others who take part in the production of things for sale; and again the demand for machines, factories, railway material and other instruments of production. The demand for the work of medical men, of domestic servants and of all those whose services are rendered direct to the consumer is similar in character to the demand for commodities for immediate consumption, and its laws may be investigated in the same manner.

CHAPTER IV.

THE MEASUREMENT OF THE UTILITY OF WEALTH.

Price and Utility.

§ 1. WE may now turn to consider how far the price which is actually paid for a thing represents the pleasure that arises from its possession, or in other words the "utility" of wealth. This is a wide subject on which economic science has very little to say, but that little is important.

We have already seen that the price which a person pays for a thing, can never exceed, and seldom comes up to that which he would be willing to pay rather than go without it: so that the gratification which he gets from its purchase generally exceeds that which he gives up in paying away its price; and he thus derives from the purchase a surplus of pleasure. The excess of the price which he would be willing to pay rather than go without it, over that which he actually does pay is the economic measure of this surplus pleasure: and for reasons which will appear later on, may be called CONSUMERS' RENT[1].

Consumers' Rent.

In order to give definiteness to our notions, let us consider the case of coals purchased for domestic consumption. Let us take the case of a man, who, if the price of coals were £10 a ton, would just be induced to buy one ton annually; who would just be induced to buy two tons if the price were £7, three tons if the price were £5, four tons if the price were £3, five tons if the price were £2, six tons if the price

[1] The following account of Consumers' Rent is reproduced with slight alterations from some papers printed for private circulation in 1879. See Preface.

were £1. 10*s.*, and who, the price being actually £1, does purchase seven tons. We have to investigate the Consumers' Rent which he derives from his power of purchasing coal at £1 a ton.

The fact that he would just be induced to purchase one ton if the price were £10, proves that the total enjoyment or satisfaction which he derives from that ton is as great as that which he could obtain by spending £10 on other things. In other words, the satisfaction derived from, or the value in use to him of, a single ton a year, is economically measured by £10; and therefore his power of purchasing one ton of coals for £1 gives him a surplus satisfaction, of which the economic measure is £9; that is to say, it gives him a Consumers' Rent of £9.

Again if the price were £7 a ton, he would just be induced to purchase a second ton; so that the value in use to him of a second ton is measured by £7. The Consumers' Rent that he derives from his power of purchasing this ton for £1 is therefore £6: and so on. Thus the whole Consumers' Rent which he derives from the power of purchasing coal at £1 a ton is £9 + 6 + 4 + 2 + 1 + ½, i.e. £22½.

We may put the same thing in another way. The economic measure of the total value in use, or, as Jevons says, of the TOTAL UTILITY of the coal, is the sum of the prices that he would be just willing to give for each successive ton: i.e. £10 + 7 + 5 + 3 + 2 + 1½ + 1, i.e. £29. 10*s.* His Consumers' Rent is the excess of this sum over the £7 which are the value in exchange or market price of the coal: it thus measures the surplus or excess of the total utility to him of the seven tons of coal which he purchases, over the utility of the commodities which he could have obtained by expending in other ways the £7 which are the value in exchange of those seven tons.

The term *Total Utility* was introduced by Jevons.

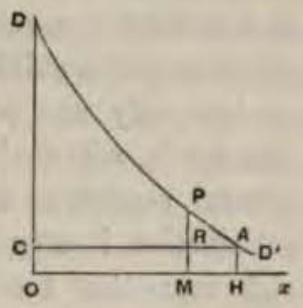
(Those other commodities would be just beyond the margin of his previous purchases, commodities which he had just not thought it worth while to buy at their current prices; and therefore they would not yield him any Consumers' Rent.)

In the same way if we neglect for the present the fact

that the same sum of money represents different amounts of pleasure to different people we may measure the surplus satisfaction which the sale of house-coal affords, say, in the London market by the aggregate of the sums by which the prices shown in a complete demand schedule for coal exceeds its selling price[1].

[1] Let us consider then the demand curve DD' for coal in London. Let OH be the amount which is sold there at the price HA annually, a year being taken as the unit of time for the market. Taking any point M in OH let us draw MP vertically upwards to meet the curve in P and cut a horizontal line through A in R. We will suppose the several tons numbered in the order of the eagerness of the several purchasers: the eagerness of the purchaser of any ton being measured by the price he is just willing to pay for that ton. The figure informs us that OM units can be sold at the price PM; but that at any higher price not quite so many tons can be sold.

Fig. 10.



There must be then some individual who will buy more at the price PM, than he will at any higher price; and we are to regard the OMth ton as sold to this individual. Suppose for instance that PM represents £2, and that OM represents a million tons. The purchaser described in the text is just willing to buy his fifth ton of coal at the price £2, and the OMth or millionth ton of coal may be said to be sold to him. If AH and therefore RM represent £1, the Consumers' Rent derived from the OMth ton is the excess of PM or £2 which the purchaser of that ton would have been willing to pay for it over RM the £1 which he actually does pay for it. Let us suppose that a very thin vertical parallelogram is drawn of which the height is PM and of which the base is the distance along Ox that measures the single unit or ton of coal. It will be convenient henceforward to regard price as measured not by a mathematical straight line without thickness, as PM; but by a very thin parallelogram, or as it may be called a thick straight line, of which the breadth is in every case equal to the distance along Ox which measures a unit or ton of coal. Thus we should say that the total satisfaction derived from the OMth ton of coal is measured by the thick straight line MP; that the price paid for this ton is represented by the thick straight line MR and the Consumers' Rent derived from this ton by the thick straight line RP. Now let us suppose that such thin parallelograms, or thick straight lines, are drawn for all positions of M between O and H, one for each ton or unit of coal. The thick straight lines thus drawn, as MP is, from Ox up to the demand curve will each measure the total satisfaction derived from a ton of coal. The sum of these satisfactions taken together is the total satisfaction derived from the consumption of coal; and these thick straight lines taken together occupy and exactly fill up the whole area $DOHA$. Therefore we may say that the area $DOHA$ measures the total satisfaction derived from the consumption of coal. Again each of the straight lines drawn, as MR is, from Ox upwards as far as AC represents the price that actually is paid for a ton of coal. These straight lines together make up the area $COHA$; and therefore this area represents the total price paid for coal. Finally each of the straight lines

It is obvious that the Consumers' Rents derived from some commodities are much greater than from others. There are many comforts and luxuries of which the prices are very much below those which many people would pay rather than go entirely without them; and which therefore afford an enormous Consumers' Rent. Good instances are matches, salt, a penny newspaper, or a penny postage stamp[1].

Corrections to be made: firstly on account of differences in the wealth of different purchasers.

§ 2. Next to take account of the fact that the rich value at a shilling a much smaller gratification than the poor could afford to pay a shilling for. A poor woman who could manage to buy only one pound of tea in a year if she had to pay 10*s.* for it, will derive a vast surplus satisfaction from buying several pounds at 2*s.* a pound. But a much smaller surplus satisfaction is afforded by a change in the consumption of a rich man that has an equal money measure. Suppose for instance that he would buy only one bundle of asparagus at the price of 10*s.*: but that, the price falls to 2*s.*, and

drawn as RP is from AC upwards as far as the demand curve, represents the Consumers' Rent derived from the corresponding ton of coal. These straight lines together make up the area DCA; and therefore this area represents the total Consumers' Rent that is derived from coal when the price is AH.

It has already been remarked that it will seldom be possible to obtain the data necessary for drawing the demand curve accurately throughout any large portion of its length. If A is the point on the curve corresponding to the amount that is wont to be sold in the market, data can be obtained sufficient for drawing the curve with tolerable correctness for some distance on either side of A; but it will scarcely ever occur that the curve can be drawn with any approach to accuracy right up to D. It happens, however, that the practical applications of the theory of value require a knowledge of the shape of the demand curve only in the neighbourhood of A. We seldom require to ascertain accurately the total area DCA; it is sufficient for most of our purposes to know the changes in this area that would be occasioned by moving A through small distances along the curve in either direction. Nevertheless it will be convenient to continue to assume, as in pure theory we are at liberty to do, that the curve is completely drawn for us.

[1] There is however a difficulty in estimating the total utility of commodities some supply of which is necessary for life; for instance, the utility of the food required to keep a man from starvation is indefinitely great. The best plan is perhaps to take that necessary supply for granted, and estimate the total utility only of that part of the commodity which is in excess of this amount. But here it is especially important to recollect that the desire for anything is much dependent on the difficulty of getting substitutes for it. (See note VI. in Appendix.)

he purchases several bundles. He gets from the low price of asparagus a surplus satisfaction indeed, but a much smaller one; and yet these two satisfactions have the same economic measures, the Consumers' Rents in the two cases are equal.

This fact diminishes the practical usefulness of estimates of Consumers' Rent to some extent, but not nearly so much as at first sight appears. For, as has already been pointed out, we may suppose utilities which have the same money power to be fairly equal, provided the prices, which we are considering, are those paid in two markets where the average wealth of the purchasers is equal, (as well of course as the general purchasing power of money). We must however always be careful not to regard the total utilities of things as fairly represented by their money measures when one of the things is consumed chiefly by the rich and the other chiefly by the poor. The neglect of this precaution led economists of the last generation to untrue conclusions, which were unfortunately of such a kind as to seem to imply a want of sympathy with the sufferings of the poor. But of this more hereafter.

Secondly on account of elements of collective wealth which are apt to be overlooked.

There is another class of corrections which must be made before the money measure of the total utility of wealth can be taken to represent the real happiness which its possession affords. Not only does a person's happiness often depend more on his own physical, mental and moral health than on the external conditions of his wellbeing: but even among these conditions many that are of chief importance for his real happiness are apt to be omitted from an inventory of his wealth. Some are free gifts of nature; and these might indeed be neglected without great harm if they were always the same for everybody; but in fact they vary much from place to place. More of them however are elements of collective wealth which are often omitted from the reckoning of individual wealth; but which become important when we compare different parts of the modern civilized world, and even more important when we compare our own age with earlier times. Subject to these corrections then we may regard the aggregate of the money measures of the total

utility of wealth as a fair measure of that part of the happiness which is dependent on wealth[1].

Further corrections.

§ 3. An increase of wealth scarcely ever fails to cause an increase of happiness for the time. Independently of the pleasures got from the things that can be bought with the new wealth, there is a satisfaction in the success of which it is generally a sign[2]. In accordance with a suggestion made by Daniel Bernouilli we may perhaps suppose that that part of a person's happiness which he derives from his income, may be regarded as commencing when he has enough to support life and afterwards as increasing by equal amounts with every equal successive percentage that is added to his income; and *vice versa* for loss of income.

Bernouilli's suggestion.

The edge of enjoyment is blunted by familiarity.

But after a time the new riches often lose a great part of their charms. Partly this is the result of familiarity; which makes people cease to derive much pleasure from accustomed comforts and luxuries, though they suffer greater pain from their loss. Partly it is due to the fact that with increased riches there often comes either the weariness of age, or at least an increase of nervous strain, and perhaps habits of living that lower physical vitality and diminish the capacity for pleasure.

In every civilized country there have been some followers

[1] See note VII. in the Appendix.

[2] See note VIII. in the Appendix. It may be mentioned in passing that from the general law that the utility to any one of an additional £1 diminishes with the number of pounds he already has, there follow two important practical principles. The first is that gambling involves an economic loss, even when conducted on perfectly fair and even terms. For instance a man who having £600 makes a fair even bet of £100, has now an expectation of happiness equal to half that derived from £700, and half that derived from £500; and this is less than the certain expectation of the happiness derived from £600, because by hypothesis the difference between the happiness got from £600 and £500 is greater than the difference between the happiness got from £700 and £600. (Compare Jevons l. c. Ch. IV. and see note IX. in the Appendix.) The second principle, the direct converse of the first, is that a theoretically fair insurance against risks is always an economic gain. But of course every insurance office after calculating what is a theoretically fair premium, has to charge in addition to it enough to pay for profits on its own capital, and for its own expenses of working, among which are often to be reckoned very heavy items for advertizing and for losses by fraud. The question whether it is advisable to pay the premium which insurance offices practically do charge, is one that must be decided for each case on its own merits.

The value of leisure and rest.

of the Buddhist doctrine that a placid serenity is the highest ideal of life; that it is the part of the wise man to root out of his nature as many wants and desires as he can; that real riches consist not in the abundance of goods but in the paucity of wants. At the other extreme are those who maintain that the growth of new wants and desires is always beneficial because it stimulates the people to increased exertions. They seem to have made the mistake as Mr Herbert Spencer says[1], of supposing that life is for working, instead of working for life.

The excellence of a moderate income obtained by moderate work

The truth seems to be that as human nature is constituted, man rapidly degenerates unless he has some hard work to do, some difficulties to overcome; and that some strenuous exertion is necessary for physical and moral health. The fulness of life lies in the development and activity of as many and as high faculties as possible; though to carry activity, however high, to the verge of exhaustion is a mistake unless it be done in pursuit of some higher aim. But, particularly in a Northern climate, a great deal of hard work is necessary to enable us to escape from hunger, cold and disease, and a great deal more to provide the means of a fairly cultured life. There is some misuse of wealth in all ranks of society: but, speaking generally, we may say that every increase in the income of the working classes adds to the fulness and nobility of human life; because it is used chiefly in the supply of real wants.

Expenditure for the sake of display.

§ 4. Even among the artisans, however, in England, and perhaps still more in new countries, there are signs of the growth of that unwholesome desire for wealth as a means of display which has been the chief bane of the well-to-do classes in every civilized country. Laws against luxury have been futile[2]; but it would be a gain if the moral sentiment of the community could induce people to avoid all sorts of

[1] See his lecture on *the Gospel of Relaxation*. I have heard a manufacturer, whose general character stood high, express regret at the tendency of his workmen to care less for drink: because when they drank more, they were more eager to earn high wages, and, having less resources, were more fully under his control.

[2] Roscher has written much that is interesting on this subject in his *Political Economy* and in his *Ansichten*.

The superior nobility of the collective over the private use of wealth.

display of individual wealth. There are indeed true and worthy pleasures to be got from wisely ordered magnificence: but they are at their best when free from any taint of personal vanity on the one side, and envy on the other; as they are when they centre round public buildings, public parks, public collections of the fine arts, and public games and amusements. So long as wealth is applied to provide for every family the necessaries of life and culture, and an abundance of the higher forms of enjoyment for collective use, so long the pursuit of wealth is a noble aim; and the pleasures which it brings are likely to increase with the growth of those higher activities which it is used to promote.

The tasteful purchaser educates the producer.

When the necessaries of life are once provided, every one should seek to increase the beauty of things in his possession rather than their number or their magnificence. An improvement in the artistic character of furniture and clothing trains the higher faculties of those who make them, and is a source of growing happiness to those who use them.

We thus approach the fringe of broad inquiries, which must be deferred.

But if instead of seeking for a higher standard of beauty, we spend our growing resources on increasing the complexity and intricacy of our domestic goods, we gain thereby no true benefit, no lasting happiness. The world would go much better if every one would buy fewer and simpler things, and would take trouble in selecting them for their real beauty; being careful of course to get good value in return for his outlay, but preferring to buy a few things made well by highly paid labour rather than many made badly by low paid labour. But we are exceeding the proper scope of the present Book; the discussion of the influence on general wellbeing which is exerted by the mode in which each individual spends his income is one of the more important of those applications of economic science to the art of living which will find their place at the end of the Treatise.

Finally then while insisting that every one's chief sources of happiness must be within himself; that health of body and mind and spirit, a pure heart and a love towards God and man will make a person happy however poor he is;

and that no amount of material wealth will serve to chase away misery from one who is not of a cheerful spirit; we must recollect that poverty causes mental and moral degradation; and this fact will indeed be brought prominently before us in our ensuing inquiry into the causes which determine the efficiency of labour. A moderate income earned by moderate work offers the best opportunity for the growth of those habits of body, mind, and spirit in which alone there is true happiness.

BOOK IV.

PRODUCTION OR SUPPLY.

CHAPTER I.

INTRODUCTORY.

§ 1. WHILE demand is based on the desire to obtain commodities, supply depends on the overcoming of the unwillingness to undergo "discommodities." These fall generally under one of two classes, labour and the abstinence involved in putting off consumption.

The motives for work are various;

It is true that much exertion is undergone for its own sake, as for instance in mountaineering, in playing games and in the pursuit of literature, of art, and of science; and much hard work is done under the influence of a desire to benefit others; and such work has for the greater part no economic measure[1]. But the chief motive to most work, in the present state of the world, is the desire to obtain some material advantage, which often appears in the first instance in the form of the gain of a certain amount of money, or command over commodities in general. Even when a man is working for hire, he often finds pleasure in his work; but he generally gets so far tired before it is done, that he is glad when the hour for stopping arrives. Perhaps after he has been out of work for some time, he might so far as his immediate comfort is concerned, rather work for nothing than not work at all; but he will probably prefer to store up his strength till he can get paid for his work. In most occupations even that part of the work which affords the worker more pleasure than pain, must as a rule be paid for

but the most prominent for our immediate purpose are those connected with the hope of reward.

[1] Comp. Bk. I. Ch. vi.

at the same rate as the rest; the price of the whole therefore is determined by that part of the labour which is most unwillingly given, and which the worker is on the verge of refusing to give; or as we may say by the MARGINAL DISUTILITY of labour.

Marginal disutility.

As with every increase in the amount of a commodity offered for sale its marginal utility falls, and as with every fall in the marginal utility there is a fall in the price that can be got for the whole of the commodity, and not for the last part only; so it is with regard to the supply of labour. If there is an increase in the amount required of a certain kind of work, and some of it has to be done with greater difficulty, so as to cause a greater disutility, then a higher price must be paid for this; and the price of all the rest of the work will rise at the same time. This surplus price which has to be paid to all the rest of the labour in some respects resembles Rent, as will be more clearly seen hereafter.

Although labour is sometimes its own reward,

The unwillingness of any one already in an occupation to increase his exertions depends, under ordinary circumstances, on fundamental principles of human nature which economists have to accept as ultimate facts. As Jevons remarks[1], there is often some resistance to be overcome before setting to work; work often involves at starting some little pain, which gradually diminishes to zero, and is succeeded by pleasure; this increases for a while until it attains a certain low maximum, after which it diminishes to zero, and is succeeded by steadily increasing pain. In intellectual work, however, the pleasure and excitement, after they have once set in, often go on increasing till progress is stopped of necessity or by prudence. Everyone in health has a certain store of energy on which he can draw, but which can only be replaced by rest; so that if his expenditure exceed his income for long, his health becomes bankrupt; and employers often find that in cases of great need a temporary increase of pay will induce their workmen to do an amount of work which they cannot long keep up, whatever they are paid for it.

Subject to these and some other qualifications it is broadly

[1] *Theory of Political Economy*, Ch. v.

true that the exertions which any set of workers will make, rise or fall with a rise or fall of the remuneration which is offered to them. And if for the moment we assumed that the efficiency of production depended solely upon the exertions of the workers, we should get a SUPPLY SCHEDULE corresponding to the Demand Schedule which we have already considered. This Supply Schedule would set forth theoretically in one column of figures, various amounts of exertion and therefore of production, and in a parallel column the prices which must be paid to induce these amounts of exertion to be forthcoming. As the price required to attract purchasers for any given amount of a commodity was called the Demand-price for that amount, so the price required to call forth the exertion necessary for producing any given amount of a commodity may be called the SUPPLY PRICE for that amount.

we may regard its supply as governed by the price which is to be got for it.

The *Supply Schedule* for a commodity on a simple hypothesis.

Supply Price.

This instance will serve fairly well to indicate the general drift of the inquiry before us; but it does not closely correspond to the actual conditions of life.

§ 2. As a matter of fact the supply of commodities is not so simply determined: the total efficiency of production depends on many conditions, which we have to consider in the present Book. The first of these is the aid which nature gives to man: which we shall find to be such that though she scarcely ever ceases to respond to his increased efforts, she often affords them only a diminishing rate of return. Next we have to discuss the growth of numbers and the average strength and industrial skill of each class of workers: and to consider them in relation to the causes which determine the supply prices of different kinds and amounts of industrial efficiency. Next after looking at the growth of wealth in general, and in particular those parts of it which aid and support future production, we must examine the causes and the effects of industrial organization: for the collective efficiency of production depends on its organization almost as much as it does on the numbers of those who work, or on their individual efficiency.

The order in which it is proposed to examine the chief conditions on which supply generally depends.

Having thus taken a broad survey of the factors of production, we shall be prepared to consider how the supply

price of any given amount of a commodity (that is the price at which that amount will be forthcoming under normal conditions), is governed by the supply prices of the several factors that contributed to its production. We shall then be ready for discussing in the following Books the general theory of the relations of Demand and Supply, and the applications of this theory to the chief practical problems of Distribution and Exchange.

CHAPTER II.

THE FERTILITY OF LAND.

The notion that land is a free gift of nature while the produce of land is due to man's work is a loose one: but there is a truth underlying it.

§ 1. THE requisites of production are commonly spoken of as land, labour and capital: those material things which owe their usefulness to human labour being classed under capital, and those which owe nothing to it being classed as land. The distinction is obviously a loose one: for bricks are but pieces of earth slightly worked up; and the soil of old settled countries has for the greater part been worked over many times by man, and owes to him its present form. There is however a scientific principle underlying the distinction. While man has no power of creating matter, he creates utilities by putting things into a useful form[1]; and the utilities made by him can be increased in supply if there is an increased demand for them: they have a supply price. But there are other utilities over the supply of which he has no control, they are given as a fixed quantity by nature and have therefore no supply price. The term "land" has been extended by economists so as to include the permanent sources of these utilities[2]; whether they are found in land, as the term is commonly used, or in seas and rivers, in sunshine and rain, in winds and waterfalls.

[1] See Book II. Chapter iii.

[2] In Ricardo's famous phrase "the original or indestructible properties of the soil." Von Thünen, in a noteworthy discussion of the basis of the theory of rent, and of the positions which Adam Smith and Ricardo took with regard to it, speaks of "Der Boden an sich"; a phrase which unfortunately cannot be translated, but which means the soil as it would be by itself, if not altered by the action of man (*Der Isolirte Staat*, I. i. 5).

When we have inquired what it is that marks off land from those material things which we regard as products of the land, we shall find that the fundamental attribute of land is its extension. The right to use a piece of land gives command over a certain space—a certain part of the earth's surface. The area of the earth is fixed: the geometric relations in which any particular part of it stands to other parts, are fixed. Man has no control over them; they are wholly unaffected by demand; they have no cost of production, there is no supply price at which they can be produced.

The use of a certain area of the earth's surface is a primary condition of anything that man can do. It gives him room for his own actions, with the enjoyment of the heat and the light, the air and the rain which nature assigns to that area. It determines his distance from, and in a great measure his relations to other things and other persons. This property of "land" it is which, though as yet insufficient prominence has been given to it, is the ultimate cause of the distinction which all writers on economics are compelled to make between land and other things. It is the foundation of much that is most interesting and most difficult in economic science.

Some parts of the earth's surface contribute to production chiefly by the services which they render to the navigator: others are of chief value to the miner; others—though this selection is made by man rather than by nature—to the builder. But when the productiveness of land is spoken of our first thoughts turn to its agricultural use.

§ 2. To the agriculturist an area of land is the means of supporting a certain amount of vegetable, and perhaps ultimately of animal life. For this purpose the soil must have certain mechanical and chemical qualities.

Mechanical conditions of fertility.

Mechanically, it must be so far yielding that the fine roots of plants can push their way freely in it; and yet it must be firm enough to give them a good hold. It must not err as some sandy soils do by affording water too free a passage: for then it will often be dry, and the plant food

will be washed away almost as soon as it is formed in the soil or put into it. Nor must it err, as stiff clays do, by not allowing the water a fairly free passage. For constant supplies of fresh water, and of the air that it brings with it in its journey through the soil, are essential: they convert into plant food the minerals and gases that otherwise would be useless or even poisonous. The action of fresh air and water and of frosts are nature's tillage of the soil; and even unaided they will in time make almost any part of the earth's surface fairly fertile if the soil that they form can rest where it is, and is not torn away down hill by rain and torrents as soon as it is formed. But man gives great aid in this mechanical preparation of the soil. The chief purpose of his tillage is to help nature to enable the soil to hold plant roots gently but firmly, and to enable the air and water to move about freely in it. Even when he manures the ground he has this mechanical preparation in view. For farmyard manure benefits clay soils by subdividing them and making them lighter and more open, no less than by enriching them chemically; while to sandy soils it gives a much needed firmness of texture, and helps them, mechanically as well as chemically, to hold the materials of plant food which would otherwise be quickly washed out of them.

Chemical conditions of fertility.

Chemically the soil must have the inorganic elements that the plant wants in a form palatable to it. The greater part of the bulk of the plant is made up of so-called "organic compounds"; that is, compounds of carbon chiefly with oxygen, hydrogen and nitrogen[1]; and of these it obtains by far the greater part from air and water. Only a small fraction (somewhere about a twentieth on an average) of its dry bulk consists of mineral matter that it cannot get except from the soil. And as most soils have given them by nature at least some small quantities of all the mineral substances that are necessary for plant life, they can support

[1] They are called organic, not because they really are organized, but because they are found in vegetable and animal organisms; and because at one time chemists thought that none of them could be made except as a process of organic growth. But Liebig showed that it was a mistake to suppose that plants can absorb organized matter. It must become unorganized before it can be plant food.

some sort of vegetation without human aid. Often however they have but very scanty provision of one or two necessary elements; phosphoric acid, potash and lime being those of which the supplies are most apt to run short. It may indeed happen that the deficient food is one of which some kinds of plants require only a little, and then there may be a fairly good growth of just those plants; but such cases are rare; and the vegetation generally is poor and thin whenever the soil is deficient in one of the mineral constituents of plant life. If however it be well provided in other respects, and in a good condition mechanically, there is an opportunity for man to make a great change with but little labour. He can then turn a barren into a very fertile soil by adding a small quantity of just those things that are needed; using in most cases either lime in some of its many forms, or those artificial manures which modern chemical science has provided in great variety.

Manures.

Again, these special manures are of the highest importance to supply particular mineral elements of plant food of which the soil is robbed by the animal and vegetable products which are sold away from the land. It is true that the soil itself has often large "dormant" stores of many of these things. They are dormant because they are not in a fit chemical and mechanical condition to be consumed by the plant. To bring them into that condition and make them "active" food, they must be well plied with oxygen and carbonic acid gas. This may be effected by proper tillage, even the subsoil being forced to give up its stores of dormant food, if it has them; and in that case the land may be kept fertile with very little aid from special manures, particularly if it receives a general return of its lost constituents in the form of farmyard manure[1].

[1] Farmyard manure contains everything that plant life wants, but in unequal proportions. It has the advantage of aiding the distribution over the whole of the soil of small particles of everything that the plant wants: each rootlet in contact with decaying vegetable matter finds ready to it all that it needs; nothing is left out. But the mineral elements form only a small part of farmyard manure. The great bulk of it, exclusive of water, consists of organic compounds. The plant draws its chief supply of these, and can in case of necessity get all, from the atmosphere; though it prefers to obtain some through its

Man's power of altering the character of the soil.

§ 3. By all these means the fertility of a soil can be brought under man's control. He can by sufficient labour make almost any land bear large crops. He can prepare the soil mechanically and chemically for whatever crops he intends to grow next. He can adapt his crops to the nature of the soil and to one another; selecting such a rotation that each will leave the land in such a state, and at such a time of year, that it can be worked up easily and without loss of time into a suitable seed bed for the coming crop[1]. He can

roots. The supply of mineral elements in the soil is therefore of primary importance: its supply of nitrogen is the chief chemical factor of its "condition", that is of its readiness to meet any immediate demand on it; while its supplies of phosphoric acid, potash and lime are the chief chemical factors of its permanent fertility. But the organic compounds in farmyard manure and other decaying vegetable matter in the soil are of great use even in this respect; for they work the dormant mineral plant food in the soil up into an active form, and hold stores of it ready for the plant. Certain crops absorb an exceptionally large amount of certain minerals and these may happen not to come back in manure to the particular land from which they are taken; and of course any such special deficiency cannot be made good by farmyard manure without giving the soil more than it wants of some other things. Lime for instance sometimes runs short; and potash is often in great demand on sandy soils, particularly when root crops are grown on them. But the most important case is that of phosphoric acid. Of this the soil has scarcely ever any large quantity; while plants, particularly cereals require a good deal of it. In fact it is believed that there is very little near the surface of the ground which has not already been many times absorbed into vegetable and thence into animal life; and it has nearly always to be supplied by special manures to land that is required to grow continuous heavy crops, particularly of cereals. Farmyard manure generally contains little of it unless the cattle have been fed largely on grain. Human excrements are rich in it: and are of great assistance in this way to most peasant proprietors; but our modern habit of washing sewage out to sea makes the use of artificial manures much more necessary than it was. There is however at last, after many disappointments, some prospect of a remedy for this waste.

[1] The basis of most of the modern English rotations is the Norfolk course, which was adapted by Mr Coke (Lord Leicester) to enable light, and so-called "poor" soils to bear good wheat crops. The first crop on his plan is turnips: they do not require to be sown till May or June; and therefore the winter and spring following the wheat crop, with which the preceding rotation closes, can be spent in tilling, cleaning and manuring. In the spring of the second year barley and clover are sown together: in the third year the clover is consumed: the land can be ploughed up in time for autumn sown wheat, which finds the soil strengthened mechanically by the clover roots and improved chemically by the nitrogen which these venturesome explorers have brought up from the subsoil. On these lines an immense variety of rotations have been adapted to various soils and conditions of farming, many of them extending over six or seven years. (A list of the chief of them is given in the *Memoir of the Agriculture of England and Wales prepared by the Royal Agricultural Society of England for the International Agricultural Congress* 1878. Pages 316—354.)

even permanently alter the nature of the soil by draining it, or by mixing with it other soil that will supplement its deficiencies[1].

All these changes are likely to be carried out more extensively and thoroughly in the future than in the past. But even now the greater part of the soil in old countries owes much of its character to human action; all that lies just below the surface has in it a large element of capital, the produce of man's past labour: the inherent, or indestructible, properties of the soil, the free gifts of nature, have been largely modified; partly robbed and partly added to by the work of many generations of men.

But it is different with that which is above the surface. Every acre has given to it by nature an annual income of heat and light, of air and moisture; and over these man has but little control. He may indeed alter the climate a little by extensive drainage works or by planting forests, or cutting them down[2]. But, on the whole, the action of the sun and the wind and the rain are an annuity fixed by nature for each plot of land. Ownership of the land gives possession of this annuity: and it also gives the space required for the life and action of vegetables and animals; the value of this space being much affected by its geographical position.

We may then continue to use the ordinary distinction

At present rather more than half the cultivated land of the United Kingdom is in permanent pasture; and of the rest one half is in corn crops, rather less than a quarter in green crops, chiefly roots, and rather more than a quarter in clover and grasses under rotation. In England the permanent pasture is proportionately less and the corn crops are greater than in Ireland and Scotland.

[1] Hitherto this has been done only on a small scale; chalk and lime, clay and marl have been but thinly spread over the fields; a completely new soil has seldom been made except in gardens and other favoured spots. But it is possible, and even as some think probable, that at some future time the mechanical agencies used in making railways and other great earthworks may be applied on a large scale to creating a rich soil by mixing two poor soils with opposite faults. (See Mr Scott Burn's *Directory for the Improvement of Landed Property*, p. 239.) As it is, when the subsoil is known to contain important elements which the surface soil has lost, or perhaps has never had, the enterprising owner will stir it deeply so that the air and fresh water may act on it, and after a time brings some of it up to mix with the surface soil.

[2] See in particular "The Influence of Trees on Climate and Productiveness" in Appendix I. to the *Report of the Indian Famine Commission*, 1881.

Original and artificial properties of land.

between the original or inherent properties, which the land derives from nature, and the artificial properties which it owes to human action; provided we remember that the first include the space-relations of the plot in question, and the annuity that nature has given it of sunlight and air and rain; and that in many cases these are the chief of the inherent properties of the soil. It is chiefly from them that the ownership of agricultural land derives its peculiar significance, and the theory of rent its special character[1]. But

[1] There is some interest in the attempt to distinguish that part of the value of land which is the result of man's labour, from that which is due to the original bounty of nature. Part of its value is caused by highways and other general improvements that were made for the general purposes of the country, and are not a special charge on its agriculture. Counting these in, List, Carey, Bastiat and others contend that the expense of bringing land from the state in which man found it to its present condition would exceed the whole value it has now; and hence they argue that all of its value is due to man's labour. Their facts may be disputed; but they are really not relevant to their conclusions. What is wanted for their argument is that the present value of land should not exceed the expense, in so far as it can properly be charged to agricultural account, of bringing the land from the state in which man found it to a condition in which it would be as fertile and generally useful for agricultural purposes as it now is. Many of the changes wrought in it were made to suit agricultural methods that are long since obsolete; and some of them even deduct from, rather than add to, the value of the land. And further the expenses of making the change must be the net expenses after adding indeed interest on the gradual outlay, but also after deducting the aggregate value of the extra produce which has, from first to last, been attributable to the improvement. The value of land in a well-peopled district is generally much greater than these expenses, and often many times as great.

The following table, taken from the above quoted *Memoir of the Royal Agricultural Society*, shews the investments of capital per acre on four typical English farms:—

	Total value.	Cost of farm buildings and labourers cottages.	Fencing and local roads.	Drainage.	Leaving for value of land in its natural condition.	Tenants capital.	Rent.
	£. s.	£. s.	£. s. d.	£. s.	£. s. d.	£. s. d.	£. s.
Dairy farm...	75 0	12 15	2 10 0	5 0	54 15 0	12 0 0	2 10
Mixed arable and pasture	45 0	8 0	2 0 0	0 0	35 0 0	12 0 0	1 10
Ditto upland	30 0	6 7	1 0 0	0 0	22 13 0	10 0 0	1 0
Pasture farm	94 10	7 0	1 13 4	0 0	85 16 8	12 0 0	3 3

But the fall in all agricultural values which had begun before 1878, when the Memoir was written, has continued at an increasing rate since then, and there are many who think that the rise in the value of English land during the past generation is a bare return to the capital invested in permanent improve-

the question how far the fertility of any soil is due to the original properties given to it by nature, and how far to the changes in it made by man, cannot be fully discussed without taking account of the kind of produce raised from it.

The original qualities count for more and the artificial for less in some cases than in others.

§ 4. Human agency can do much more to promote the growth of some crops than of others. At one end of the scale are forest trees; an oak well planted and with plenty of room has very little to gain from man's aid: there is no way of applying labour to it so as to obtain any considerable return. Nearly the same may be said of the grass on some rich river bottoms which are endowed with a rich soil and good natural drainage; wild animals feeding off this grass without man's care will farm it nearly as well as he does; and much of the richest farm land in England, (paying a rent of £6 an acre and upwards) would give to unaided nature almost as great a return as is got from it now[1]. Next comes land which, though not quite so rich, is still kept in permanent pasture; and after this comes arable land on which man does not trust to nature's sowing, but prepares for each crop a seed bed to suit its special wants, sows the seed himself and weeds away the rivals to it. The seeds which he sows are selected for their habit of quickly maturing and fully developing just those parts which are most useful to him; and though the habit of making this

ments; that is, they think there has been no rise in the real value of the original properties of the soil for agricultural purposes. M. Leroy Beaulieu (*Repartition des Richesses*, Ch. II.) holds that this has been the case at all events in Belgium and France; and Mr Pell supports a similar opinion with regard to England by some instructive statistical instances (see an Article on *The making of the Land in England* in Vol. XXIII. of the Journal of the Royal Agricultural Society). The values of the farms in the United States were $6,645,000,000 in 1860; they rose to $7,500,000,000 (estimated in gold) in 1870, and to $10,197,000,000 in 1880. But as General Walker points out (*Tenth Census*, Vol. VII. p. 23), "it is a familiar feature of paper money inflations that real estate, especially rural real estate, seldom begins to rise so early or continues to rise so long as the prices of commodities." Allowing therefore for only half the premium on gold he gets the value for 1870 at $8,250,000,000: and thus arrives at an increase of about 24% in each of the two decades.

[1] Of course wherever the grass is mown, manure should be returned. It has moreover recently been found that manuring permanent pasture enriches it for a long time to come; for then the richest and finest grasses find within their reach as much food as they can consume, and are thus able to beat out of the field the poorer and coarser sorts.

selection carefully is only quite modern, and is even now far from general, yet the continued work of thousands of years has given him plants that have but little resemblance to their wild ancestors[1]. Lastly the kinds of produce which owe most to man's labour and care are the choicer kinds of fruits, flowers and vegetables, and of animals, particularly those which are used for improving their own breeds. For while nature left to herself would select those that are best able to take care of themselves and their offspring, man selects those which will provide him most quickly with the largest supplies of the things he most wants; and many of the choicest products could not hold their own at all without his care.

In any case the extra return to additional capital and labour diminishes sooner or later.

Thus various then are the parts which man plays in aiding nature to raise the different kinds of agricultural produce. In each case he works on till the extra *Return* got by extra capital and labour has so far *diminished* that it will no longer remunerate him for applying them. Where this limit is soon reached he leaves nature to do nearly all the work; where his share in the production has been great, it is because he has been able to work far without reaching this limit. We are thus brought to consider the Law of Diminishing Return.

[1] Perhaps it is not unreasonable to hope that in time plants may be obtained every part of which will serve an important purpose. Just as in the Arctic regions every fragment of the reindeer's body is turned to account, so it may become possible to use as food, or for some other important purpose, both root and leaves, both stem and fruit of our plants. At present we eat the root of the potato, but the rest of the plant is useless except as food for other plants: we eat the leaves of the cabbage, but root and stalk are useless. The wood of the beech tree, the wood and the fruit of the pear tree are turned to good account: but their leaves are left to decay. Possibly (as Mr Moore Ede has suggested to me) chemical science may enable us to use as food many of those vegetable materials which we now throw away.

CHAPTER III.

THE FERTILITY OF LAND, CONTINUED. THE LAW OF DIMINISHING RETURN.

§ 1. The LAW OF DIMINISHING RETURN may be provisionally stated thus:

Provisional statement of the Law,

An increase in the capital and labour applied in the cultivation of land causes *in general* a less than proportionate increase in the amount of produce raised, unless it happens to coincide with an improvement in the arts of agriculture.

which is founded on general experience.

We learn from history and by observation that every agriculturist in every age and clime desires to have the use of a good deal of land; and that when he cannot get it freely, he will pay for it, if he has the means. If he thought that he would get as good results by applying all his capital and labour to a very small piece, he would not pay for any but a very small piece.

Land may be under-cultivated and then extra capital and labour will give an Increasing Return until a maximum rate has been reached, after which it will diminish again.

When land that requires no clearing is to be had for nothing, everyone uses just that quantity which he thinks will give his capital and labour the largest return. His cultivation is "extensive," not "intensive." He does not aim at getting many bushels of corn from any one acre, for then he could cultivate only a few acres. His purpose is to get as large a total crop as possible with a given expenditure of seed and labour; and therefore he sows as many acres as he can manage to bring under a light cultivation. Of course he may go too far: he may spread his work over so large an area that he would gain by concentrating his capital and labour on a

smaller space; and under these circumstances if he could get command over more capital and labour so as to apply more to each acre, the land would give him an INCREASING RETURN; that is, an extra return larger in proportion than it gives to his present expenditure. But if he has made his calculations rightly, he is using just so much ground as will give him the highest return; and he would lose by concentrating his capital and labour on a smaller area. If he had command over more capital and labour and were to apply more to his present land, he would gain less than he would by taking up more land; he would get a DIMINISHING RETURN, that is, an extra return smaller in proportion than he gets for the last doses of capital and labour that he now applies, provided of course that there is meanwhile no perceptible improvement in his agricultural skill. As his sons grow up they will have more capital and labour to apply to land; and in order to avoid obtaining a Diminishing Return, they will want to cultivate more land. But perhaps by this time all the neighbouring land is already taken up, and in order to get more they must buy it or pay a rent for the use of it, or migrate where they can get it for nothing.

Were it otherwise every farmer would save most of his rent by applying all his capital and labour to a small part of his land.

This tendency to a Diminishing Return was the cause of Abraham's parting from Lot[1], and of most of the migrations of which history tells. And wherever the right to cultivate land is much in request, we may be sure that the tendency to a Diminishing Return is in full operation. Were it not for this tendency every farmer could save nearly the whole of his rent by giving up all but a small piece of his land, and bestowing all his capital and labour on that. If all the doses of capital and labour that he would in that case apply to it gave as good a return as those which he now applies to it, he would get from that plot as large a produce as he now gets from his whole farm, and would make a net gain of all his rent save that of the little plot that he retained.

It may be conceded that the ambition of farmers often leads them to take more land than they can properly manage: and indeed almost every great authority on agriculture from

[1] "The land was not able to bear them that they might dwell together; for their substance was great so that they could not dwell together." Genesis xiii. 6.

Arthur Young downwards, has inveighed against this mistake. But when they tell a farmer that he would gain by applying his capital and labour to a smaller area, they do not necessarily mean that he would get a larger gross produce. It is sufficient for their argument that the saving in rent would more than counterbalance any probable diminution of the total returns that he got from the land. If a farmer pays a fourth of his produce as rent, he would gain by concentrating his capital and labour on less land, provided the extra doses applied to each acre gave anything more than three-fourths of the return that he got from the earlier doses.

Improved methods may enable more capital and labour to be profitably applied.

Again it may be granted that much land, even in a country as advanced as England, is so unskilfully cultivated that it could be made to give more than double its present gross produce if twice the present capital and labour were applied to it skilfully. Very likely those are right who maintain that if all English farmers were as able, wise and energetic as the best are, they might profitably apply twice the capital and labour that is now applied. Assuming rent to be one fourth of the present produce, they might get seven hundredweight of produce for every four that they now get: it is conceivable that with still more improved methods they might get eight hundredweight, or even more. But this does not prove that, *as things are*, further capital and labour could obtain from land an Increasing Return. The fact remains that, taking farmers as they are with the skill and energy which they actually have, we find as the result of universal observation that there is not open to them a short road to riches by giving up a great part of their land, by concentrating all their capital and labour on the remainder, and saving for their own pockets the rent of all but that remainder. The reason why they cannot do this is told in the Law of Diminishing Return.

The Law relates to the amount of the produce, not its value.

It is important to remember that the Return to capital and labour of which the Law speaks, is measured by the *amount* of the produce raised independently of any changes that may meanwhile take place in the *price* of produce; such, for instance, as might occur if a new railway had been made in the neighbourhood, or a new town population had grown

up close by. Such changes will be of vital importance when we come to draw inferences from the Law of Diminishing Return, and particularly when we discuss the pressure of increasing population on the means of subsistence. But they have no bearing on the Law itself, because that has to do not with the value of the produce raised, but only with its amount.

We may now formulate the limitations which were implied under the words "in general" in our provisional statement of the Law. The Law is a statement of a tendency which may indeed be held in check for a time by improvements in the arts of production and by the fitful course of the development of the full powers of the soil; but which must ultimately become irresistible if the demand for produce should increase without limit. Our final statement of the Law may then be divided into two parts, thus:—

Final statement of the Law.

Although an improvement in the arts of agriculture may raise the rate of return which land generally affords to any given amount of capital and labour; and although the capital and labour already applied to any piece of land may have been so inadequate for the development of its full powers, that some further expenditure on it even with the existing arts of agriculture would give a more than proportionate return; yet these conditions are rare in an old country. And, except when they are present, the application of increased capital and labour to land will add a less than proportionate amount to the produce raised, unless there be meanwhile an increase in the skill of the individual cultivator. Further, whatever may be the future developments of the arts of agriculture, a continued increase in the application of capital and labour to land must ultimately result in a diminution of the extra produce which can be obtained by a given extra amount of capital and labour.

A *Dose* of capital and labour.

§ 2. Making use of a term suggested by James Mill, we may regard the capital and labour applied to land as consisting of equal successive DOSES[1]. As we have seen, the return to the first few doses may perhaps be small and a

[1] Some difficulties in the interpretation of this term are considered in a Note at the end of the chapter.

greater number of doses may get a larger proportionate return; the return to successive doses may even in exceptional cases alternately rise and fall. But our law states that sooner or later (it being always supposed that there is meanwhile no change in the arts of cultivation) a point will be reached after which all further doses will obtain a less proportionate return than the preceding doses.

Marginal dose, marginal return, margin of cultivation.

The dose which only just remunerates the cultivator may be said to be the MARGINAL DOSE, and the return to it the MARGINAL RETURN. If there happens to be in the neighbourhood land that is cultivated but only just pays its expenses, and so gives no surplus for rent, we may suppose this dose applied to it. We can then say that the dose applied to it is applied to land on the MARGIN OF CULTIVATION, and this way of speaking has the advantage of simplicity. But it is not necessary for the argument to suppose that there is any such land: what we want to fix our minds on is the return to the marginal dose: whether it happens to be applied to poor land or to rich does not matter; all that is necessary is that it should be the last dose which can profitably be applied to that land[1].

The marginal dose is not necessarily the last in time.

When we speak of the marginal, or the "last" dose applied to the land, we do not mean the last in time, we mean that dose which is on the margin of profitable expenditure; that is, which is applied so as just to give the ordinary returns to the capital and labour of the cultivator, without affording any surplus. To take a concrete instance, we may suppose a farmer to be thinking of sending the hoers over a field once more; and after a little hesitation he decides that it is worth his while, but only just worth his while to do it. The dose of capital and labour spent on doing it, is then the last dose in our present sense, though there are many doses still to be applied in reaping the crop. Of course the return to this last dose cannot be separated from the others; but we ascribe to it all that part of produce which we believe would

[1] Ricardo was well aware of this: though he did not emphasize it enough. Those opponents of his doctrine who have supposed that it has no application to places where all the land pays a rent, have mistaken the nature of his argument.

not have been produced if the farmer had decided against the extra hoeing.

Surplus Produce.

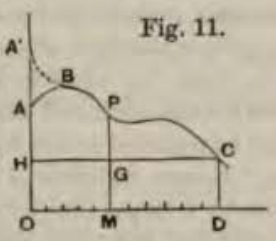
Since the return to the dose on the margin of cultivation just remunerates the cultivator, it follows that he will be just remunerated for the whole of his capital and labour by as many times the marginal return as he has applied doses in all. Whatever he gets in excess of this is the SURPLUS PRODUCE of the land. This surplus is retained by the cultivator if he owns the land himself[1].

Its relation to rent.

(This Surplus Produce may, under certain conditions, become the rent which the owner of the land can exact from the tenant for its use. But, as we shall see hereafter, the full rent of a farm in an old country is made up of three elements: the first being due to the value of the soil as it was made by Nature; the second to improvements made in it by man; and the third, which is often the most important of all, to the growth of a dense and rich population, and to facilities of communication by public roads, railroads, &c.)

[1] Let us seek a graphical illustration. If on any given field there were expended a capital of £50, a certain amount of produce would be raised from it: a certain amount larger than the former would be raised if there were expended on it a capital of £51. The difference between these two amounts may be regarded as the produce due to the fifty-first pound; and if we suppose the capital to be applied in successive doses of £1 each we may speak of this difference as the produce due to the fifty-first dose. Let the doses be represented in order by successive equal divisions of the line *OD*. Let there now be drawn from the division of this line representing the fifty-first dose *M*, a line *MP* at right angles to *OD*, in thickness equal to the length of one of the divisions, and such that its length represents the amount of the produce due to the fifty-first dose. Suppose this done for each separate division up to that corresponding to the last dose which it is found profitable to put on the land. Let this last dose be the 110th at *D*, and *DC* the corresponding return that only just remunerates the farmer. The extremities of such lines will lie on a curve *APC*. The gross produce will be represented by the sum of these lines: i.e., since the thickness of each line is equal to the length of the division on which it stands, by the area *ODCA*. Let *CGH* be drawn parallel to *DO*, cutting *PM* in *G*; then *MG* is equal to *CD*; and since *DC* just remunerates the farmer for one dose, *MG* will just remunerate him for another: and so for all the portions of the thick vertical lines cut off between *OD* and *HC*. Therefore the sum of these, that is the area *ODCH*, represents the share of the produce that is required to remunerate him; while the remainder, *AHGCPA*, is the Surplus Produce, which under certain conditions becomes the rent.

Fig. 11.



Ricardo confined his attention to the circumstances of an old country.

In an old country it is seldom possible to discover what was the original state of the land before it was first cultivated. The results of some of man's work are for good and evil fixed in the land; they cannot be distinguished from the results of nature's work, but must be counted with them. The line of division between nature's work and man's work is blurred, and must be drawn more or less arbitrarily. But for most purposes it is best to regard the initial difficulties of coping with nature as pretty well conquered before we begin to reckon the farmer's cultivation. Thus the returns that we count as the first doses of capital and labour are generally the largest of all, and the tendency of the return to diminish shows itself at once. Having English agriculture chiefly in view, we may fairly take, as Ricardo did, this as the typical case[1].

The schedule of nature's return to increased applications of capital and labour shows great va-

§ 3. Let us next inquire on what depends the *rate* of diminution or of increase of the returns to successive doses of capital and labour. We have seen that there are great variations in the share of the produce which man may claim as the additional result of his own work over what unaided nature would have produced. Man's share is much larger with some

[1] That is we may substitute (fig. 11) the dotted line BA' for BA and regard $A'BPQ$ as the typical curve for the return to capital and labour applied in English agriculture.

The law of Diminishing Return bears a close analogy to the law of Demand. The return which land gives to a dose of capital and labour may be regarded as the price which land offers for that dose. Land's return to capital and labour is, so to speak, her effective demand for them: her return to any dose is her demand price for that dose, and the list of returns that she will give to successive doses may thus be regarded as her demand schedule; but to avoid confusion we shall call it her "Return Schedule". A person may be willing to pay a larger proportionate price for a carpet that would cover the whole of his room than for one that would go only half way; and then his demand schedule would at one stage show an increase and not a diminution of demand price for an increased quantity. But such cases are rare, and in the aggregate demand of many individuals these unevennesses destroy one another; so that the aggregate demand schedule of a group of people always shows the demand price as falling steadily with every increase in the amount offered. In the same way, by grouping together many pieces of land we might obtain a Return Schedule that would show a constant diminution for every increase of capital and labour applied. But it is more easy to ascertain, and in some ways more important to take note of, the variations of individual demand in case of plots of land than in the case of people. And therefore our typical return schedule is not drawn out so as to show as even and uniform a diminution of return as our typical demand schedule does of demand price.

crops and soils and methods of cultivation than with others. Broadly speaking it increases as we pass from forest to pasture land, from pasture to arable, and from plough land to spade land; and this is because the rate of diminution of the return is as a rule greatest in forests, rather less in pasture, still less in arable land, and least of all in spade land. We may say then that, as a rule, man's share of the produce is least when the Law of Diminishing Return applies most sharply: if he stops off his work soon, it is because the return is rapidly diminishing.

Variety of detail, according to the character of the land and of the crops raised from it.

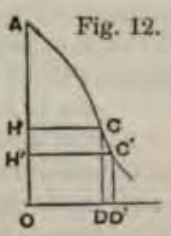
There is no absolute measure of the richness or fertility of land. Even if there be no change in the arts of production, a mere increase in the demand for produce may invert the order in which two adjacent pieces of land rank as regards fertility. The one which gives the smaller produce, when both are uncultivated, or when the cultivation of both is equally slight, may rise above the other and justly rank as the more fertile when both are cultivated with equal thoroughness. In other words many of those lands which are the least fertile when cultivation is merely extensive, become among the most fertile when cultivation is intensive. For instance self-drained pasture land may give a return large in proportion to a very slight expenditure of capital and labour, but a rapidly diminishing return to further expenditure: as population increases it may gradually become profitable to break up some of the pasture and introduce a mixed cultivation of roots and grains and grasses; and then the return to further doses of capital and labour may diminish less slowly[1].

But the order of relative fertility of different pieces of land may change with circumstances.

Other land makes poor pasture, but will give more or less liberal returns to a great deal of capital and labour applied in tilling and in manuring it; its returns to

[1] This case is illustrated by fig. 12; for when produce has risen in real value in the ratio of OH' to OH (so that the amount required to remunerate the farmer for a dose of capital and labour has fallen from OH to OH'), the Surplus Produce rises only to $AH'C'$, which is not very much greater than its old amount AHC.

Fig. 12.

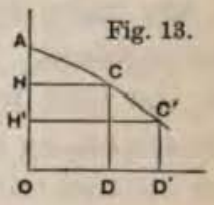


the early doses are not very high, but they diminish slowly[1].

Again other land is marshy. It may, as did the fens of East England, produce little but osiers and wild fowl. Or, as is the case in many tropical districts, especially on the American Continent, it may be prolific of vegetation, but so shrouded with malaria that it is difficult for man to live there, and still more to work there. In such cases the returns to capital and labour are at first small, but as drainage progresses, they increase; afterwards perhaps they again fall off[2]. But when, however, improvements of this kind have once been made, the capital invested in the soil cannot be removed; the early history of the cultivation is not repeated; and the produce due to all further applications of capital and labour conforms, at all events so far as this point is concerned, to the Law of Diminishing Return.[3]

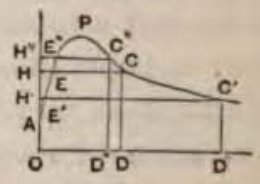
Similar though less conspicuous changes may occur on

Fig. 13.



[1] This case is represented in fig. 13, when a similar change in the price of produce makes the new Surplus Produce $AH'C'$ about three times as large as the old Surplus, AHC.

Fig. 14.



[2] This case is represented in fig. 14. The earliest doses of capital and labour applied to the land give so poor a return, that it would not be worth while to apply them unless it were intended to carry the cultivation further. But later doses give an increasing return which culminates at P, and afterwards diminishes. If the price to be got for produce is so low that an amount OH'' is required to remunerate the cultivator for a dose of capital and labour, it will then be only just profitable to cultivate the land. For then cultivation will be carried as far as D''; there will be a deficit on the earlier doses represented by the area $H''AE''$, and a surplus on the later doses represented by the area $E''PC''$: and as these two are about equal, the cultivation of the land so far will only just pay its way. But if the price of produce rises till OH is sufficient to remunerate the cultivator for a dose of capital and labour, the deficit on the earlier doses will sink to HAE, and the surplus on the later doses will rise to EPC: the net surplus (the true rent in case the land is hired out) will be the excess of EPC over HAE. Should the price rise further till OH' is sufficient to remunerate the cultivator for a dose of capital and labour, this net surplus will rise to the very large amount represented by the excess of $E'PC'$ over $H'AE'$.

[3] In such a case as this the earlier doses are pretty sure to be sunk in the land; and the actual rent paid, if the land is hired out, will then include profits on them in addition to the Surplus Produce or true rent thus shewn. Of course provision can be made in the diagrams for the returns due to the landlord's capital.

land already well cultivated. For instance, without being marshy, it may be in need of a little drainage to take off the stagnant water from it, and to enable fresh water and air to stream through it. Or the subsoil may happen to be naturally richer than the soil at the surface: or again, though not itself rich, it may have just those properties in which the surface soil is deficient, and then a thorough system of deep steam ploughing may permanently change the character of the land.

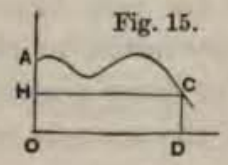
Thus we need not suppose that when the return to extra capital and labour has begun to diminish, it will always continue to do so. Improvements in the arts of production may, it has always been understood, raise generally the return which can be got by any amount of capital and labour; but this is not what is meant here. The point is that, independently of any increase in his knowledge, and using only those methods with which he has long been familiar, a farmer finding extra capital and labour at his command, may sometimes obtain an increasing return even at a late stage in his cultivation. His return may diminish and then increase and then diminish again; and yet again increase when he is in a position to carry out some further extensive change[1].

It has been well said that as the strength of a chain is that of its weakest link, so fertility is limited by that element in which it is most deficient. Those who are in a hurry, will reject a chain which has one or two very weak links, however strong the rest may be; and prefer to it a much slighter chain that has no flaw. But if there is heavy work to be done, and they have time to make repairs, they will set the larger chain in order, and then its strength will exceed that of the other. In this we find the explanation of much that is apparently strange in agricultural history.

Land which gave the best re-

The first settlers in a new country generally avoid land which does not lend itself to immediate cultivation.

Fig. 15.



[1] This case was represented by fig. 11. But more extreme instances, of the kind represented by fig. 15, are not very rare.

They are often repelled by the very luxuriance of natural vegetation, if it happens to be of a kind that they do not want. They do not care to plough land that is at all heavy, however rich it might become if thoroughly worked. They will have nothing to do with water-logged land. They generally select light land which can easily be worked with a double plough, and then they sow their seed broadly, so that the plants when they grow up may have plenty of light and air, and may collect their food from a wide area.

turns to the early settlers is not always that which gives the best returns to modern farmers especially when good markets have grown up near them.

When America was first settled, many farming operations that are now done by horse machinery were still done by hand; and though now the farmers have a strong preference for flat prairie land, free from stumps and stones, where their machines can work easily and without risk, they had then no great objection to a hill-side. Their crops were light in proportion to their acreage, but heavy in proportion to the capital and labour expended in raising them.

Thus any measure of fertility must be relative to the circumstances of the place and time.

We cannot then call one piece of land more fertile than another till we know something about the skill and enterprise of its cultivators, and the amount of capital and labour at their disposal; and till we know whether the demand for produce is such as to make intensive cultivation profitable with the resources at their disposal. If it is, those lands will be the most fertile which give the highest average returns to a large expenditure of capital and labour; but if not, those will be the most fertile which give the best returns to the first few doses. The term fertility has no meaning except with reference to the special circumstances of a particular time and place.

But even when so limited there is some uncertainty as to the usage of the term. Sometimes attention is directed chiefly to the power which land has of giving adequate returns to intensive cultivation and so bearing a large total produce per acre; and sometimes to its power of yielding a large surplus produce or rent, even though its gross produce is not very large: thus in England now rich arable land is very fertile in the former sense, rich meadow in the second. For many purposes it does not matter which of these senses of the term is understood: in the few cases in which it does

matter, an interpretation clause must be supplied in the context[1].

Other causes of change in the relative values of different pieces of land.

§ 4. But further, the order of fertility of different soils is liable to be changed by changes in the methods of cultivation and in the relative values of different crops. Thus when at the end of last century Mr Coke shewed how to grow wheat well on light soils by preparing the way with clover, they rose relatively to clay soils; and now though they are still sometimes called from old custom "poor", some of them have a higher value, and are really more fertile, than much of the land that used to be carefully cultivated while they were left in a state of nature.

Again, the increasing demand in Central Europe for wood to be used as fuel and for building purposes, has raised the value of the pine-covered mountain slopes relatively to almost every other kind of land. But in England this rise has been prevented by the substitution of coal for wood as fuel, and of iron for wood as a material for ship-building, and lastly by England's special facilities for importing wood. Again, the cultivation of rice and jute often gives a very high value to lands that are too much covered with water to bear most other crops. And again, since the repeal of the Corn Laws the prices of meat and dairy produce have risen in England relatively to that of corn. It was partly in consequence of this that, as we have seen, those arable soils that would grow rich forage crops in rotation with corn, rose relatively to the cold clay soils. And at the same time permanent pasture recovered part of that great fall in

[1] If the price of produce is such that an amount of it OH (figs. 12, 13, 14) is required to pay the cultivator for one dose of capital and labour, the cultivation will be carried as far as D; and the produce raised, $AODC$ will be greatest in fig. 12, next greatest in fig. 13, and least in fig. 14. But if the demand for agricultural produce so rises that OH' is enough to repay the cultivator for a dose, the cultivation will be carried as far as D', and the produce raised will be $AOH'C'$, which is greatest in fig. 14, next in fig. 13, and least in fig. 12. The contrast would have been even stronger if we had considered the surplus produce which remains after deducting what is sufficient to repay the cultivator, and which becomes under some conditions the rent of the land. For this is AHC in figs. 12 and 13 in the first case and $AH'C$ on the second; while in fig. 14 it is in the first case the excess of $AODCPA$ over $ODCH$, i.e. the excess of PEC over AHE; and in the second case the excess of $PE'C$ over $AH'E'$.

its value relatively to arable land, which had resulted from the growth of population[1].

As a rule the poorer soils rise in value relatively to the richer as the pressure of population increases.

Independently of any change in the suitability of the prevailing crops and methods of cultivation for special soils, there is a constant tendency towards equality in the value of different soils. In the absence of any special cause to the contrary, the growth of population and wealth will make the poorer soils gain on the richer. Land that was at one time entirely neglected is made by much labour to raise rich crops; its annual income of light and heat and air, is probably as good as those of richer soils: while its faults can be much lessened by labour[2]. For the same reason the depression of English agriculture, through which we are now passing in consequence of American competition, is lowering the value of poor lands relatively to that of rich lands of the same character; and especially it is lowering the values of

[1] Mr Rogers (*Six Centuries of Work and Wages*, p. 73) calculates that while rich meadow had about the same value, estimated in corn five or six centuries ago as it has now, the value estimated in corn of arable land has increased about fivefold in the same time. This is partly due to the difficulty that there was in the Middle Ages in providing winter food for cattle.

[2] Thus we may compare two pieces of land represented in figs. 16 and 17, with regard to which the Law of Diminishing Return acts in a similar way, so that their produce curves have similar shapes, but the former has a higher fertility than the other for all degrees of intensity of cultivation. The value of the land may generally be represented by its surplus produce or rent, which is in each case represented by AHC when OH is required to repay a dose of capital and labour; and by $AH'C'$ when the growth of numbers and wealth have made OH' sufficient. It is clear that $AH'C'$ in fig. 17 bears a more favourable comparison with $AH'C'$ in Fig. 6 than does AHC in Fig. 17 with AHC in fig. 16. In the same way, though not to the same extent the total produce $AOD'C'$ in fig. 17 bears a more favourable comparison with $AOD'C'$ in fig. 16, than does $AODC$ in fig. 17 with $AODC$ in fig. 16.

Fig. 16.

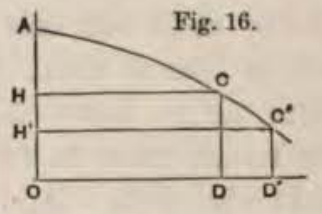
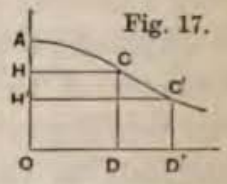


Fig. 17.



M. Leroy Beaulieu (*Repartition des Richesses*, chap. II.) has collected several facts illustrating this tendency of poor lands to rise in value relatively to rich. He quotes from M. H. Passy the following figures showing the rental in francs per hectare (2½ acres) of five classes of land in several communes of the Departments de l'Eure et de l'Oise in 1829 and 1852 respectively:—

	Class I	Class II	Class III	Class IV	Class V
A. D. 1829	58	48	34	20	8
A. D. 1852	80	78	60	50	40

those lands which return good crops to very high cultivation; but which quickly relapse into a poor condition, unless a great deal of capital and labour is constantly spent on them.

There is no absolute standard of good cultivation.

As there is no absolute standard for fertility, so there is none of good cultivation. The best cultivation in the richest parts of the Channel Islands for instance, involves a lavish expenditure of capital and labour on each acre: for they are near good markets and have a monopoly of an equable and early climate. If left to nature the land would not be very fertile, for though it has many virtues, it has two weak links, (being deficient in phosphoric acid and potash). But, partly by the aid of the abundant seaweed on its shores, these links can be strengthened, and the chain thus becomes exceptionally strong. Intense, or as it is ordinarily called in England "good" cultivation, will thus raise £100 worth of early potatoes from a single acre. But an equal expenditure per acre by the farmer in Western America would ruin him; relatively to his circumstances it would not be good, but bad cultivation.

Ricardo's statement of the law was inaccurately worded.

§ 5. Ricardo's statement of the Law of Diminishing Return was inexactly worded. It is however probable that the inaccuracy was due not to careless thinking but only to careless writing. There are strong reasons for holding that he had not overlooked the conditions which were necessary to make the law true; he seems here, as elsewhere, to have made the great error of taking for granted that his readers would supply those conditions which were present in his own mind. In any case he would have been justified in thinking that these conditions were not of great importance in the peculiar circumstances of England at the time at which he wrote, and for the special purposes of the particular practical problems he had in view. Of course he could not anticipate the great series of inventions which were about to open up new sources of supply, and, with the aid of free trade, to revolutionize English agriculture; but the agricultural history of England and other countries might have led him to lay greater stress on the probability of a change[1].

[1] Had he done this, he would have helped his readers to supply the premises

Ricardo said that the richest lands were cultivated first; this is true in the sense in which Ricardo meant it: but it is apt to be misunderstood

He stated that the first settlers in a new country invariably chose the richest lands, and that as population increased, poorer and poorer soils were gradually brought under cultivation, speaking carelessly as though there were an absolute standard of fertility. But as we have already seen, where land is free, everyone chooses that which is best adapted for his own purpose, and that which will give him, all things considered, the best return for his capital and labour. He therefore, looks out for land that can be cultivated at once, and passes by land that has any weak links in the chain of its elements of fertility, however strong it may be in some other links. But besides that he has to avoid malaria, he has to think of his communication with his markets and the base of his resources; and in some cases the need for security against the attacks of enemies and wild beasts outweighs all other considerations. It is therefore not to be expected that the lands which were first chosen, should turn out always to be those which ultimately come to be regarded as the most fertile. Ricardo did not consider this point, and thus laid himself open to attacks by Carey and others, which, though for the greater part based on a misinterpretation of his position, have yet some solid substance in them.

that were present in his own mind: if they do that they will find nothing of importance in his statement of the Law of Diminishing Return, or in his deductions from it, which is not true as far as it goes. As Roscher says (*Political Economy*, Sect. CLV.) "In judging Ricardo, it must not be forgotten that it was not his intention to write a text-book on the science of Political Economy, but only to communicate to those versed in it the result of his researches in as brief a manner as possible. Hence he writes so frequently making certain assumptions, and his words are to be extended to other cases only after due consideration, or rather re-written to suit the changed case." The followers of Ricardo have accepted John Stuart Mill's re-statement of the law in which the conditions necessary to make it exact were introduced. Nevertheless these conditions are habitually ignored even now by some critical writers: they persist in putting forward what they call refutations of the law, but what are really either arguments that these conditions ought not to be overlooked or else attacks on inferences or deductions that have been made rightly or wrongly from it. For instance some people have inferred from the Law of Diminishing Return that the English people now would be better off if their numbers did not increase so fast. This doctrine is a fair matter for argument; and some of those who have denied it have thought that they were denying the Law of Diminishing Return. But really they were denying something quite different from it. The truth of the law has, I believe, been questioned by no writer who has interpreted it properly.

Carey claims to have proved that "in every quarter of the world cultivation has commenced on the sides of the hills where the soil was poorest, and where the natural advantages of situation were the least. With the growth of wealth and population, men have been seen descending from the high lands bounding the valley on either side, and coming together at its feet"[1]. Brought up in Ireland in the tenets of Ricardo, he arrived in America early in this century, and before long was struck by the fact that the soil of New England is nearly the poorest in America; and that whenever he saw ruined houses and the traces of abandoned cultivation he found the soil exceptionally barren. This set him to enquire into the history of the occupation of the earth's surface; and he has collected a great mass of evidence in support of his proposition that the general progress of cultivation has been from lands which would be regarded as poor in an old and settled country, to those which would be regarded as rich. He has even argued that whenever a thickly peopled country is laid waste, "whenever population, wealth, and the power of association decline, it is the rich soil that is abandoned by men who fly again to the poor ones"[2]; the rich soils being rendered difficult and dangerous by the rapid growth of jungles which harbour wild beasts and banditti, and perhaps by malaria.

as it was by Carey,

who has collected striking instances of new settlers passing by lands which have ultimately become the most valuable.

His facts are drawn chiefly from warm if not tropical regions; and with regard to them his conclusions are perhaps true in the main. But much of the apparent attractiveness of tropical countries is delusive: they would give a very rich return to hard work, but hard work in them is impossible. A cool refreshing breeze is as much a necessary of vigorous life, as food itself. Food can be imported but fresh air cannot; land that offers plenty of food but whose climate destroys energy, is not more productive of the raw material of human well being, than land that supplies less food but has an invigorating climate. Again, the importance of many of Carey's facts diminishes on investi-

[1] *Principles of Social Science*, Chap. IV. § 4.

[2] *Ibid.* Chap. V. § 3.

gation. The choice of New England by the early settlers was an accident; houses on the hills were often, in early times as they are now, the homes of those who cultivate the rich but unhealthy valleys a few miles off[1].

It may then be admitted that Carey has proved that soils which an English farmer would regard as poor, are in very many cases cultivated before neighbouring soils which he would regard as rich. The facts on which the Law of Diminishing Return is based lead us *a priori* to expect such cases to occur sometimes. Their occasional occurrence is not inconsistent, as some foreign writers have supposed, with the general tenor of Ricardo's doctrines: on the contrary many of these cases really afford instructive illustrations of those doctrines when rightly understood; though some of them are to be explained, as has already been said, by the necessity of providing for military safety.

Many of Carey's facts are good illustrations of Ricardo's doctrine rightly intepreted and developed.

The importance of Carey's facts does not then lie in their bearing on the Law of Diminishing Return. They do not tend to invalidate the statement that the returns which a farmer will get by applying extra doses of capital and labour to land already well cultivated will be less than those which he got for the earlier doses, other things being equal; that is, there being no change in his methods of cultivation, in his markets, or in the other conditions by which he is surrounded. The practical importance of Carey's doctrine lies in its bearing on the conditions under which the growth of population tends to cause increased pressure on the means of subsistence.

§ 6. Ricardo, and the economists of his time generally, were too hasty in deducing this inference from the Law of Diminishing Return. They did not allow enough for

But Carey has shewn that Ricardo and his earlier fol-

[1] Passing down the Missouri Valley to St Louis some years ago, I saw it bearing everywhere crops of unsurpassed richness, but the farmers' houses were on the river bluffs several miles away. It may be said that this explanation may account for the absence of houses in comparatively narrow river valleys, but not in broad rich plains. If, however, we follow the maps which show the distribution of population in the United States at each successive census, we find that broad river valleys, such as those of the Lower Mississippi and the Lower Red River, were as a rule peopled in advance of the neighbouring uplands.

lowers underrated the indirect advantages which a dense population offer to agriculture,

the increase of strength that comes from organization. They paid very little heed to the assistance which every farmer gets from the presence of neighbours whether agriculturists or townspeople. A very important form of this assistance in a new country is to enable him to venture on rich land that he would have otherwise shunned, through fear of enemies or of malaria. Even if most of his neighbours are engaged like himself in agriculture, they gradually supply him with good roads, and other means of communication: they give him a market in which he can buy at reasonable terms what he wants, necessaries, comforts and luxuries for himself and his family, and all the various requisites for his farm work: they surround him with knowledge: medical aid, instruction and amusement are brought to his door; his mind becomes wider, and his efficiency is in many ways increased. And if the neighbouring market town expands into a large industrial centre, his gain is much greater. All his produce will be worth more; some things which he used to throw away will fetch a good price. He will find new openings in dairy farming and market gardening and with a larger range of produce he will make use of rotations that keep his land always active without denuding it of any one of the elements that are necessary for its fertility.

Of the way in which organization promotes production, particularly in manufactures, we shall have to speak hereafter. But we have already seen enough to be sure that even as regards agriculture the Law of Diminishing Return does not apply to the total capital and labour spent in a district as sharply as to that on a single farm. Even when cultivation has reached a stage after which each successive dose applied to a field would get a less return than the preceding dose, it may be possible for an increase in the population to cause a more than proportional increase in the means of subsistence. It is true that the evil day is only deferred: but it is deferred. The growth of population, if not checked by other causes, must ultimately be checked by the difficulty of obtaining raw produce; but in spite of the Law of Diminishing Return, the pressure of population on the means of subsistence may be restrained for a long

and this has an important bearing on the doctrine of population.

time to come by the opening up of new fields of supply, by the cheapening of railway and steamship communication, and by the growth of organization and knowledge.

The value of fresh air, light, pure water, and beautiful scenery.

In the following chapters we shall have much to say about the evil effects of local congestions of population in making it difficult to get fresh air and light, and in some cases fresh water. Again natives of New England who have gone to the fertile plains of the West, would often be willing to barter part of their heavy crops for the pure water which the barren granite soil of their old homes supplied; and even in England there are many places, particularly at the sea side which are kept poor by the want of drinking water. Again the natural beauties of a place of fashionable resort have a direct money value which cannot be overlooked; but it requires some effort to realize the true value to men, women and children of being able to stroll amid beautiful and various scenery.

The fertility of fisheries

§ 7. As has already been said the land in economic phrase includes rivers and the sea. In river-fisheries, the schedule of return to capital and labour shows a rapid diminution. As to the sea, opinions differ. Its volume is vast, and fish are very prolific; and some think that a practically unlimited supply can be drawn from the sea by man without appreciably affecting the numbers that remain there; or in other words, that the Law of Diminishing Return scarcely applies at all to sea-fisheries, that the schedule of the sea's return to additional capital and labour shows no signs of any appreciable diminution. On the other hand it is contended that modern methods of fishing, especially trawling, destroy much spawn; and that experience shows a falling off in the productiveness of those fisheries that have been very vigorously worked. The question is very important, for there is no doubt that the future population of the world will be appreciably affected as regards both quantity and quality, by the available supply of fish.

and of mines.

The produce of mines again, among which may be reckoned quarries and brickfields, is said to conform to the Law of Diminishing Return; but this statement is not

quite exact. For the rate of growth of minerals in the earth is so slow, that it may almost be neglected[1]. The supply of agricultural produce and of fish is a perennial stream; mines are as it were Nature's reservoir. The more nearly a reservoir is exhausted, the greater is the labour of pumping from it; but if one man could pump it out in ten days, ten men could pump it out in one day: and when once empty, it would yield no more. So the mines that are being opened this year might just as easily have been opened many years ago: if the plans had been properly laid in advance, and the requisite specialized capital and skill got ready for the work, ten years' supply of coal might have been raised in one year without any increased difficulty; and when a vein had once given up its treasure, it could produce no more. This difference is illustrated by the fact that the rent of a mine is calculated on a different principle from that of a farm. The farmer contracts to give back the land as rich as he found it: a mining company cannot do this; and while the farmer's rent is reckoned by the year, mining rent consists chiefly of "royalties" which are levied in proportion to the stores that are taken out of Nature's storehouse[2].

A mine does not give a diminishing return in the same sense as a farm does.

There is then a certain analogy between the cases of agricultural and of mineral produce: for we find continually increasing difficulty in obtaining a further supply of minerals, except in so far as we obtain increased power of Nature's stores through improvements in the arts of mining, and through better knowledge of the contents of the earth's crust; and there is no doubt that, other things

[1] It has indeed been asserted that the earth is producing petroleum fast by using for the purpose some of its internal heat. If this be true, it will have a great influence on the future of the world; but there seems to be little ground for hoping that it is. The question is discussed at length in Vol. X. of the recent *Census Report* of the United States.

[2] As Ricardo says, *Principles*, Chap. II. "The compensation given (by the lessee) for the mine or quarry is paid for the value of the coal or stone which can be removed from them, and has no connection with the original or indestructible powers of the land." But both he and others seem sometimes to lose sight of these distinctions in discussing the Law of Diminishing Return in its application to mines. Especially is this the case in Ricardo's criticism of Adam Smith's theory of rent. *Principles*, Chap. XXIV.

being equal, the continued application of capital and labour to mines will result in a diminishing return. But yet it seems best to avoid saying that mineral produce conforms to the Law of Diminishing Return; because in other uses of this phrase the return is part of a constantly recurring income, while the produce of mines is merely a yielding up of their stored up treasures. The produce of the field is something other than the soil; the field, properly cultivated, retains its fertility; the produce of the mine is part of the mine itself.

But building land does give a diminishing return of convenience as increased capital is spent on it.

On the other hand, services which land renders to man in giving him space and light and air in which to live and work, do conform strictly to the Law of Diminishing Return. By building high, by careful ventilation and draining, living room and working room can be got for a great many persons on a single acre. Land that has any special advantages of situation, natural or acquired, has applied to it a constantly increasing capital; buildings tower up towards the sky; natural light and ventilation are supplemented by artificial means, and the steam lift reduces the disadvantages of the highest floors. For this expenditure there is a return of extra convenience, but it is a diminishing return. However great the ground rent may be, a limit is at last reached after which it is better to pay more ground rent for a larger area than to go on piling up storey on storey any further; just as the farmer finds that at last a stage is reached at which more intensive cultivation will not pay its expenses, and it is better to pay more rent for extra land, than to face the diminution in the return which he would get by applying more capital and labour to his old land[1]. From this it results that the theory of ground rents is substantially the same as

[1] Of course the return to capital spent in building increases for the earlier doses. Even where land can be had almost for nothing, it is cheaper to build houses two stories high than one; and hitherto it has been thought cheapest to build factories about four stories high. But a belief is growing up in America, that where land is not very dear factories should be only two stories high: that is, that the return of accommodation diminishes perceptibly after the capital and labour required to raise two stories have been spent on the land.

that of farm rents. This and similar facts will presently enable us to simplify and extend the theory of value as given by Ricardo and Mill.

NOTE ON THE MEANING OF THE PHRASE "A DOSE OF CAPITAL AND LABOUR."

To begin with, there is some vagueness in the notion of a given amount of capital and labour. Farm labour is of many different kinds, and so is farm capital. This however gives rise to no difficulty so long as we may assume things to be measured by their money prices. A dose of capital and labour may then be regarded as the outlay of £1 distributed according to the convenience of the case between the earnings of labour of different kinds (including that of management), the price of seed and other materials, the cost of repair and replacement of machinery, etc., and lastly, interest on all the capital employed. This assumption may fairly be made when we are confining our attention to one place, and time, and method of cultivation.

But this resource fails us if we want to bring to a common standard the productiveness of lands in distant times or places. We shall then have to fall back on rough, and more or less arbitrary modes of measurement, which make no aim at numerical precision, but will yet suffice for the broader purposes of history. This difficulty is closely connected with that of finding a common standard of purchasing power, which we shall have to discuss later on. But it has some features peculiar to itself. For one thing there are great variations in the relative amounts of capital and labour that enter into a dose. Interest on capital is generally a much less important item in backward than in advanced stages of agriculture; in spite of the fact that the rate of interest is generally much lower in the latter. For most purposes however it is probably best to take as a common standard a day's unskilled labour of given efficiency. We thus regard the dose as made up of so much labour of different kinds, and charges for the use and replacement of capital as will together make up the value of, say, ten days' such labour; the relative proportions of these elements and their several values in terms of such labour being fixed according to the special circumstances of each problem.

A similar difficulty is found in comparing the returns obtained by capital and labour applied under different circumstances. So long as the crops are of the same kind, the quantity of one return can be measured off against that of another: but when they are of different kinds they cannot be compared till they are reduced to a common measure of value. When, for instance, it is said that land would give better returns to the capital and labour expended on it with one crop

or rotation of crops than with another, the statement must be understood to hold only on the basis of the prices at the time: much error has arisen from losing sight of this limitation.

In the case of land cultivated on a system of rotating crops, we must take the whole period of rotation together, reckoning for the land being in the same condition at the beginning and the end of the rotation, and counting on the one hand all the capital and labour applied during the whole period, and on the other the aggregate returns of all the crops.

It must be remembered that the return due to a dose of capital and labour is not here taken to include the value of the capital itself. For instance, if part of the capital on a farm consists of two year old oxen, then the returns to a year's capital and labour will include not the full weight of these oxen at the end of the year, but only the addition that has been made to it during the year. Again, when a farmer is said to work with a capital of £10 to the acre, this includes the value of everything that he has on the farm. But, as has been already explained, a dose of capital and labour applied to a farm, though it includes the whole value of the circulating capital, such as seed, does not include the whole value of the fixed capital, such as machinery and horses, but only the value of their use (after allowing for depreciation and repairs).

But although this is the method of measuring capital which is most generally adopted by economists, and the one which is to be taken for granted if nothing is said to the contrary; there are yet some exceptional cases in which it is best to adopt another. Sometimes it is convenient to speak as though all the capital applied were circulating capital applied at the beginning of the year or during it: and in that case everything that is on the farm at the end of the year is part of the produce. Thus, young cattle are regarded as a sort of raw material which is worked up in the course of time into fat cattle ready for the butcher. The farm implements may even be treated in the same way, their value at the beginning of the year being taken as so much circulating capital applied to the farm, and at the end of the year as so much produce. This plan enables us to avoid a good deal of repetition of conditioning clauses as to depreciation, etc., and to save the use of words in many ways. It is often the best plan for general reasonings of an abstract character, particularly if they are expressed in a mathematical form.

CHAPTER IV.

THE SUPPLY OF LABOUR. THE GROWTH OF NUMBERS.

The growth of numbers in the animal and vegetable kingdoms is affected only by present conditions; in the human race it is affected also by traditions of the past and forecasts of the future.

§ 1. In the animal and vegetable world the growth of numbers is governed simply by the tendency of individuals to propagate their species on the one hand, and on the other hand by the struggle for life which thins out vast numbers of the young before they arrive at maturity. In the human race alone the conflict of these two opposing forces is complicated by other influences. On the one hand regard for the future induces many individuals to control their natural impulses; sometimes with the purpose of worthily discharging their duties as parents; sometimes, as for instance during the decay of the Roman Empire, with the vilest and meanest motives. And on the other hand society exercises pressure on the individual by religious, moral and legal sanctions, some times with the object of quickening, and sometimes with that of retarding, the growth of population.

The problems of population are as old as civilization, and even older.

The study of the growth of population is often spoken of as though it were a modern one. But in a more or less vague form it has occupied the attention of thoughtful men in all ages of the world. To its influence often unavowed, sometimes not even clearly recognized, we can trace a great part of the rules, customs and ceremonies that have been enjoined in the Eastern and Western world by law-givers, by moralists, and those nameless thinkers, whose far-seeing wisdom has left its impress on national habits. Among vigorous races, and in times of great military conflict, they

aimed at increasing the supply of males capable of bearing arms; and in the higher stages of progress they have inculcated a great respect for the sanctity of human life; but in the lower stages, they have encouraged and even compelled the ruthless slaughter of the infirm and the aged, and sometimes of a certain proportion of the female children.

There has been a frequent ebb and flow of opinion on the question whether the State should encourage the growth of numbers.

With the safety valve of the power of planting colonies, and in the presence of constant war, the legislators of ancient Greece and Rome did not hesitate to give special privileges to the fathers of many children. But thoughtful men were even then aware that action in the contrary sense might be necessary if the responsibilities of parentage should ever cease to be burdensome;[1] and in Western Europe during the Middle Ages there may be observed as Roscher says[2] a regular ebb and flow of the opinion that the State should encourage the growth of numbers. It flowed generally when plague or war had thinned out the people, or when the fear of war made the recruiting officers anxious; but it seems to have ebbed in England after the Reformation, when the abolition of the celibacy of the religious orders and the more settled state of the country had given a great impetus to population, while the effective demand for labour had been diminished by the increase of sheep runs, and by the collapse of that part of the industrial system which had been organized by the monastic establishments. Later on the growth of population was checked by the licentious habits that grew up with the later Stuarts, and by that rise in the standard of comfort which took effect in the general adoption of wheat as the staple food of Englishmen during the first half of the eighteenth century. At that time there were even fears, which later inquiries showed to be unfounded, that the popu-

[1] Thus Aristotle (*Politics*, II. 6) objects to Plato's scheme for equalizing property and abolishing poverty on the ground that it would be unworkable unless the State exercised a firm control over the growth of numbers. And as Professor Jowett points out, Plato himself was aware of this; (see *Laws* v. 740: also Aristotle, *Politics*, VII. 16). The population of Greece is said to have declined from the seventh century B.C., and that of Rome from the third. (See Zumpt, *Bevölkerung im Alterthum* quoted by Rümelin in Schönberg's *Handbuch*. Comp. also Hume's essay on *The populousness of ancient nations*.)

[2] *Political Economy*, § 254.

lation was actually diminishing. Petty had forestalled some of Carey's and Wakefield's arguments as to the advantages of a dense population. Child had argued that "whatever tends to the depopulating of a country tends to the impoverishment of it;" and that "most nations in the civilized parts of the world, are more or less rich or poor proportionably to the paucity or plenty of their people, and not to the sterility or fruitfulness of their land[1]." And by the time that the world-struggle with France had attained its height, when the demands for more and more troops were ever growing, and when manufacturers were wanting more men for their new machinery; the bias of the ruling classes was strongly flowing in favour of an increase of population. So far did this movement of opinion reach that in 1769 Pitt declared that a man who had enriched his country with a number of children had a claim on its assistance to educate them. An act, passed amid the military anxieties of 1806, which granted exemption from taxes to the fathers of more than two children born in wedlock, was repealed as soon as Napoleon had been safely lodged in St Helena[2].

The doctrines of recent economists. The Physiocrats.

§ 2. But during all this time there had been a growing feeling among those who thought most seriously on social problems, that an inordinate increase of numbers, whether it strengthened the State or not, must necessarily cause great misery: and that the rulers of the State had no right to subordinate individual happiness to the aggrandizement of the State. In France in particular a reaction was caused, as we have seen, by the cynical selfishness with which the Court and its adherents sacrificed the well-being of the people for the sake of their own luxury and military glory.

[1] *Discourse on Trade*, Chap. x.

[2] See Twiss, *Progress of Political Economy*, Lect. VII. Note also that a comparison of the rapid increase in the population of Germany with that of France was a chief motive of the order of the French Chamber in 1885 that education and board should be provided at the public expense for every seventh child in all necessitous families. Napoleon the First had offered to take under his own charge one member of any family which contained seven male children: and Louis XIV., his predecessor in the slaughter of men, had exempted from public taxes all those who married before the age of 20 or had more than ten legitimate children. (See Garnier's article on *Population* in the *Dictionnaire de l'Économie Politique*.)

If the humane sympathies of the Physiocrats had been able to overcome the frivolity and harshness of the privileged classes of France, the eighteenth century would probably not have ended in tumult and bloodshed, the march of freedom in England would not have been arrested, and the dial of progress would have been more forward than it is by the space of at least a generation. As it was, but little attention was paid to Quesnay's guarded but forcible protest:—"one should aim less at augmenting the population than at increasing the national income, for the condition of greater comfort which is derived from a good income, is preferable to that in which a population exceeds its income and is ever in urgent need of the means of subsistence."

Sir James Steuart.

Sir James Steuart was much under the influence of the Physiocrats, and was indeed in some respects imbued with Continental rather than English notions of government: and his artificial schemes for regulating population[1] seem very far off from us now. With regard to the tendency of population to increase up to the margin of subsistence he accepts the Physiocratic doctrine that, to use Turgot's words, the employer "since he always has his choice of a great number of working men, will choose that one who will work most cheaply. Thus then the workers are compelled by mutual competition to lower their price; and with regard to every kind of labour the result is bound to be reached—and it is reached as a matter of fact—that the wages of the worker are limited to that which is necessary to procure his subsistence"[2].

[1] See his *Inquiry*, Bk. I. Ch. XII., "*Of the great advantage of combining a well digested Theory and a perfect Knowledge of Facts with the practical Part of Government in order to make a People multiply.*"

[2] *Sur la formation et la distribution des richesses*, § VI. Steuart's own words are (Bk. I. Ch. III.), "The generative faculty resembles a spring loaded with a weight, which always exerts itself in proportion to the diminution of resistance: when food has remained some time without augmentation or diminution, generation will carry numbers as high as possible; if then food comes to be diminished the spring is overpowered; the force of it becomes less than nothing, inhabitants will diminish at least in proportion to the overcharge. If on the other hand, food be increased, the spring which stood at 0, will begin to exert itself in proportion as the resistance diminishes; people will begin to be better fed; they will multiply, and in proportion as they increase in numbers the food will become scarce again."

Adam Smith

Adam Smith said but little on the question of population, for indeed he wrote at one of the culminating points of the prosperity of the English working classes; but what he does say is wise and well balanced and modern in tone. Accepting the Physiocratic doctrine as his basis, he corrected it by insisting that the necessaries of life are not a fixed and determined quantity, but have varied much from place to place and time to time; and may vary more[1]. But he did not work out this hint fully. And there was nothing to lead him to anticipate the second great limitation of the Physiocratic doctrine, which has been made prominent in our time by the carriage of wheat from the centre of America to Liverpool for less than what it used to cost to carry it across England.

The eighteenth century ended and the nineteenth began in gloom.

The eighteenth century wore on to its close and the next century began; year by year the condition of the working classes in England became more gloomy. An astonishing series of bad harvests[2], a most exhausting war[3], a change in the methods of industry that dislocated old ties combined with an injudicious poor law to bring the working classes into the greatest misery they have ever suffered, at all events since the beginning of trustworthy records of English social history[4]. And to crown all, well meaning enthusiasts, chiefly under French influence, were proposing communistic schemes which would enable people to throw on society the whole responsibility for rearing their children[5].

Thus while the recruiting sergeant and the employer of labour were calling for measures tending to increase the

[1] See *Wealth of Nations*, Bk. I. Ch. VIII. and Bk. V. Ch. II. See also *Supra*, Bk. II. Ch. IV.

[2] The average price of wheat in the decade 1771—1780 in which Adam Smith wrote was 34*s.* 7*d.*; in 1781—1790 it was 37*s.* 1*d.*; in 1791—1800 it was 63*s.* 6*d.*: in 1801—1810 it was 88*s.* 11*d.*; and in 1811—1820 it was 87*s.* 6*d.*

[3] Early in the present century the Imperial taxes—for the greater part war taxes—amounted to one-fifth of the whole income of the country; whereas now they are not much more than a twentieth, and even of this a great part is spent on education and other benefits which Government did not then afford.

[4] See below § 7 and above Bk. I. Ch. III. §§ 5, 6.

[5] Especially Godwin in his *Inquiry concerning Political Justice* (1792). There is some interest in the comparison of Malthus' criticism of this Essay (Bk. III. Ch. II.) with Aristotle's comments on Plato's *Republic* (see especially *Politics*, II. 6).

growth of population, more far-seeing men began to inquire whether the race could escape degradation if the numbers continued long to increase as they were then doing. Of these inquirers the chief was Malthus, and his *Essay on the Principle of Population*[1] is the starting point of all modern speculations on the subject.

Malthus.

His argument has three stages. The first.

§ 3. Malthus' reasoning consists of three parts which must be kept distinct. The first relates to the supply of labour. By a careful study of facts he proves that every people, of whose history we have a trustworthy record, has been so prolific that the growth of its numbers would have been rapid and continuous if it had not been checked either by a scarcity of the necessaries of life, or some other cause, that is, by disease, by war, by infanticide, or lastly by voluntary restraint[2].

The second.

His second position relates to the demand for labour. Like the first it is supported by facts, but by a different set of facts. He shows that up to the time at which he wrote no country (as distinguished from a city, such as Rome or Venice), had been able to obtain an abundant supply of the necessaries of life after its territory had become very thickly peopled. The produce which Nature returns to the work of man is her effective demand for population: and he shows that up to this time a rapid increase in population when already thick had not led to a proportionate increase in this demand[3].

[1] First edition 1798, second and more careful edition in 1806. Malthus' results were not all new and were not all true: but his work has the merit of being the first thorough application of the inductive method to social sciences. The chief workers therefore in the modern historical school of economics justly regard him as one of the founders of that school and his work as a solid possession for ever. (Thus Roscher calls it *κτῆμα ἐς ἀεί* and Rümelin in Schönberg's *Handbuch* calls it "ein festes Eigenthum der Wissenschaft".) In his first edition however he used an unfortunate phrase which did not express his real meaning; saying that "population tends to increase in a geometric ratio and subsistence only in an arithmetic." There are many other sentences of his which lend themselves to being misunderstood, and he has always been a favourite butt for the ridicule of shallow thinkers. An excellent account of him is given in Mr Bonar's *Malthus and his Work*.

[2] This last check was not made prominent in his first edition.

[3] But many of his critics suppose him to have stated their position much less unreservedly than he did; they have forgotten such passages as this:—"From a

Thirdly, he draws the conclusion that what had been in the past, was likely to be in the future; and that the growth of population would be checked by poverty or some other cause of suffering unless it were checked by voluntary restraint. He therefore urges people to use this restraint, and, while leading lives of moral purity, to abstain from very early marriages.

The third.

His position with regard to the supply of population, with which alone we are directly concerned in this chapter, remains substantially valid. The changes which the course of events has introduced into the doctrine of population relate chiefly to the second and third steps of his reasoning. They will require more careful study when we come to discuss the pressure of population on the means of subsistence; but meanwhile it is important to bear in mind that the prevalent belief as to the effects of an increase of population on general well-being itself exercises a great influence over that increase.

The progress of events since his time has required us to modify his second and third stages, but not his first.

After this rapid glance at the history of the doctrine of population, we may proceed to state it in its modern form.

§ 4. The growth in numbers of a people depends firstly on the "natural increase," that is, the excess of their births over their deaths; and secondly on migration.

Natural increase and migration.

The number of births depends chiefly on habits relating to marriage, the early history of which is full of instruction; but we must confine ourselves here to the conditions of marriage in modern civilized countries.

We must confine our attention to modern conditions.

The age of marriage varies with the climate. In warm climates where child-bearing begins early, it ends early,

The age of marriage

review of the state of society in former periods compared with the present I should certainly say that the evils resulting from the principle of population have rather diminished than increased, even under the disadvantage of an almost total ignorance of their real cause. And if we can indulge the hope that this ignorance will be gradually dissipated, it does not seem unreasonable to hope that they will be still further diminished. The increase of absolute population, which will of course take place, will evidently tend but little to weaken this expectation, as everything depends on the relative proportions between population and food, and not on the absolute number of the people. In the former part of this work it appeared that the countries which possessed the fewest people often suffered the most from the effects of the principle of population." *Essay*, Bk. IV. Ch. XII.

depends chiefly on the climate, and on the difficulty of supporting a family.

in colder climates it begins later and ends later[1]; but in every case the longer marriages are postponed beyond the age that is natural to the country, the smaller is the birth-rate[2]. Given the climate, the average age of marriage depends chiefly on the ease with which young people can establish themselves, and support a family according to the standard of comfort that prevails among their friends and acquaintances; and therefore it is different in different stations of life.

For these reasons the middle classes marry late and unskilled labourers early.

In the middle classes a man's income seldom reaches its maximum till he is forty or fifty years old; and the expense of bringing up his children is heavy and lasts for many years. The artisan earns nearly as much at twenty-one as he ever does, unless he rises to a responsible post, but he does not earn much before he is twenty-one; his children are likely to be a considerable expense to him till about the age of fifteen; unless they are sent into a factory, where they may pay their way at a very early age; and lastly the labourer earns nearly full wages at eighteen, while his children begin to pay their own expenses very early. In consequence, the average age of marriage is highest among the middle classes: it is low among the artisans and lower still among the unskilled labourers[3].

[1] Of course the length of a generation has itself some influence on the growth of population. If it is 25 years in one place and 20 in another; and if in each place population doubles once in two generations during a thousand years, the increase will be a million-fold in the first place, but thirty million-fold in the second.

[2] Mr F. Galton (*Inquiries into Human Faculty*, pp. 320—1) estimated that in England the probable number of children of women married at the ages of 17, 22, 27 and 32 are respectively 9·0, 7·5, 6·0 and 4·5; that is, that their relative fertilities are as 6, 5, 4 and 3. See also the international statistics at the end of this Chapter. Compare columns 2 and 3, with column 5, after allowing for illegitimate births as shown in column 6.

[3] The term marriage in the text must be taken in a wide sense so as to include not only legal marriages, but all those informal unions which are sufficiently permanent in character to involve for several years at least the practical responsibilities of married life. They are often contracted at an early age, and not unfrequently lead up to legal marriages after the lapse of some years. For this reason the average age at marriage in the broad sense of the term, with which alone we are here concerned, is below the average age at legal marriage. The allowance to be made on this head for the whole of the working classes is probably considerable; but it is very much greater in the case of unskilled labourers than of any other class. The following statistics must be interpreted in the light of this remark, and of the fact that all English industrial statistics are vitiated

Unskilled labourers, when not so poor as to suffer actual want and not restrained by any external cause, have seldom, if ever, shown a lower power of increase than that of doubling in thirty years; that is, of multiplying a million-fold in six hundred years, a billion-fold in twelve hundred: and hence it might be inferred *a priori* that their increase has never gone on without restraint for any considerable time. This inference is confirmed by the teaching of all history. Throughout Europe during the Middle Ages, and in some parts of it even up to the present time, unmarried labourers have usually slept in the farmhouse or with their parents; while a married pair have generally required a house for themselves. When a village has as many hands as it can well employ, the number of houses is not increased; and young people have to wait as best they can.

Hindrances to early marriage in stationary rural districts.

There are many parts of Europe even now in which custom exercising the force of law prevents more than one son in each family from marrying; he is generally the eldest, but in some places the youngest: if any other son marries he must leave the village. When great material prosperity, and the absence of all extreme poverty are found in old fashioned corners of the Old World, the explanation generally lies in some such custom as this with all its evils and hardships[1]. It is true that the severity of this custom may be tempered by the power of migration; but in the Middle Ages the free

by the want of sufficient care in the classification of the working classes in our official returns. The Registrar General's forty-ninth Annual Report states that in certain selected districts the returns of marriages for 1884—5 were examined with the following results; the number after each occupation being the average age of bachelors in it at marriage, and the following number, in brackets, being the average age of spinsters who married men of that occupation:—Miners 24·06 (22·46); Textile hands 24·38 (23·43); Shoemakers, Tailors 24·92 (24·31); Artisans 25·35 (23·70); Labourers 25·56 (23·66); Commercial Clerks 26·25 (24·43); Shopkeepers, Shopmen 26·67 (24·22); Farmers and sons 29·23 (26·91); Professional and Independent Class 31·22 (26·40).

[1] A typical instance is that of the valley Jachenau in the Bavarian Alps. There the custom is rigidly enforced: and there are scarcely any small cottages in the valley. Aided by a great recent rise in the value of their woods, with regard to which they have pursued a farseeing policy, the inhabitants live prosperously in large houses, the younger brothers and sisters acting as servants in their old homes or elsewhere. They are of a different race from the work people in the neighbouring valleys, who live poor and hard lives, but seem to think, so far as I could gather their opinions that the Jachenau purchases its material prosperity at too great a cost.

movement of the people was hindered by stern regulations. The free towns indeed often encouraged immigration from the country: but the rules of the gilds were in some respects almost as cruel to people who tried to escape from their old homes as were those enforced by the feudal lords themselves[1].

The landless man now marries earlier than the peasant proprietor in old countries,

§ 5. In this respect the position of the hired agricultural labourer has changed very much. The towns are now always open to him and his children, and if he betakes himself to the New World he is likely to succeed better than any other class of emigrants. But on the other hand the gradual rise in the value of land and its growing scarcity is tending to check the increase of population in some districts in which the system of peasant properties prevails, in which there is not much enterprise for opening out new trades or for emigration, and parents feel that the social position of their children will depend on the amount of their land. They incline to limit artificially the size of their families and to treat marriage very much as a business contract, seeking always to marry their sons to heiresses. Mr Francis Galton has pointed out that, though the families of English peers are generally large, the habit of marrying the eldest son to an heiress, who is presumably not of a fertile stock, and sometimes dissuading the younger sons from marriage, has led to the extinction of a great many peerages; and in like manner among the French peasants this habit combined with their preference for small families keeps their numbers almost stationary[2].

but not in new countries.

On the other hand there seem to be no conditions more favourable to the rapid growth of numbers than those of the agricultural districts of new countries. Land is to be

[1] See e.g. Rogers, *Six Centuries*, pp. 106—7.

[2] The birthrate in France is known to vary inversely with the predominance of small properties, being lowest in those departments in which the largest proportion of the agricultural population are landowners, and highest in those in which there are fewest peasant proprietors. See Dr Berthillon's statistics quoted by M. Yves-Guyot (*Social Economy*, Bk. IV. Ch. I.). The birthrate in France was 32·3 per 1000 at the beginning of the century, and it has diminished steadily from decade to decade till now it is only 24·6. The extreme prudence of peasant proprietors under stationary conditions was noticed by Malthus. See for instance his account of Switzerland (*Essay*, Bk. II. Ch. V.).

had in abundance, railways and steamships carry away the produce of the land and bring back in exchange implements of advanced types, and many of the comforts and luxuries of life. The "farmer," as the peasant proprietor is called in America, finds therefore that a large family is not a burden, but an assistance to him. He and they live healthy out-of-door lives; there is nothing to check but everything to stimulate the growth of numbers. The natural increase is aided by immigration; and thus, in spite of the fact that some classes of the inhabitants of large cities in America are, it is said, reluctant to have many children, the population has increased sixteen-fold in the last hundred years.

Fecundity is diminished by excessive mental strain;

§ 6. Reference has already been made to the influence of the age of marriage on fecundity. People whose lives involve much mental strain often marry late; and this by itself would tend to diminish their families. But further there can be no doubt that fecundity is diminished by any great nervous strain. Mr Galton has indeed proved that those who do high mental work are not as a class unprolific. But then as a class they have much more than the average of constitutional and nervous strength. And it seems certain that, given the natural strength of the parents, their expectation of a large family is diminished by a great increase of mental strain. How far this tendency may reach is under dispute: but there are some who think it so strong as to make it probable that the progress of civilization will of itself hold the growth of population completely in check[1].

and by luxury, but not by the absence of hardship.

There seems to be less ground for the belief, which was at one time held by many people[2], that abundance of the necessaries of life diminishes fecundity. No doubt this effect follows from excessive eating and lazy self-indulgent habits of life. But any increase of the necessaries and comforts of life that is likely to fall to the share of the working classes is shown by more recent investigations to be likely to

[1] See especially Herbert Spencer, *Principles of Biology*, Part VI.

[2] In particular Doubleday, *True Law of Population*. See also Sadler, *Law of Population*. Adam Smith said that poor Highland women frequently had twenty children of whom not more than two reached maturity. (*Wealth of Nations*, Bk. I. Ch. VIII.)

increase the rate of growth of population[1]; provided of course that it is not accompanied by a growing dislike to having a large family.

Population in England.

§ 7. The growth of population in England has a more clearly defined history than that of the United Kingdom, and we shall find some interest in noticing its chief movements.

The restraints on the increase of numbers during the Middle Ages were the same in England as elsewhere. In

The celibacy of the religious orders.

England as elsewhere the religious orders were a refuge to those for whom no establishment in marriage could be provided; and religious celibacy while undoubtedly acting in some measure as an independent check on the growth of population, is in the main to be regarded rather as a method in which the broad natural forces tending to restrain population expressed themselves, than as an addition to them.

Plague and famine.

Infectious and contagious diseases, both endemic and epidemic, were caused by dirty habits of life which were even worse in England than in the South of Europe; and famines by the failures of good harvests and the difficulties of communication; though this evil was less in England than elsewhere.

The difficulties of migration

Country life was as elsewhere rigid in its habits; young people found it difficult to establish themselves until some other married pair had passed from the scene and made a vacancy in their own parish; for migration to another parish was seldom thought of by an agricultural labourer under ordinary circumstances. Consequently whenever plague or war or famine thinned the population, there were always many waiting to be married, who filled the vacant places; and being perhaps younger and stronger than the average of newly married couples had larger families[2].

were not altogether insuperable.

There was however some movement even of agricultural labourers towards districts which had been struck more heavily than their neighbours by pestilence, by famine or the

[1] Malthus' remark that the reproductive power is less in barbarous than in civilized races has been extended by Darwin to the animal and vegetable kingdom generally. (*Descent of Man*, Part I. Ch. IV.)

[2] Thus we are told that after the Black Death of 1349 most marriages were very fertile (Rogers, *History of Agriculture and Prices*, Vol. I. p. 301).

sword. Moreover artisans were often more or less on the move, and this was especially the case with those who were engaged in the building trades, and those who worked in metal and wood; though no doubt the "wander years" were chiefly those of youth, and after these were over the wanderer was likely to settle down in the place in which he was born. Again there seems to have been a good deal of migration on the part of the retainers of the landed gentry, especially of the greater barons who had seats in several parts of the country. And lastly, in spite of the selfish exclusiveness which the gilds developed as years went on, the towns offered in England as elsewhere a refuge to many who could get no good openings for work and for marriage in their own homes. In these various ways some elasticity was introduced into the rigid system of mediæval economy; and population was able to avail itself in some measure of the increased demand for labour which came gradually with the growth of knowledge, the establishment of law and order, and the development of oceanic trade[1].

The Settlement Laws.

In the latter half of the seventeenth and the first half of the eighteenth century the central government exerted itself

[1] There is no certain knowledge to be had as to the density of population in England before the eighteenth century. Prof. Rogers while agreeing with Mr Seebohm that the Black Death of 1349 destroyed one half of the population, is inclined to take considerably lower estimates than Mr Seebohm's for the whole of the Middle Ages and to think that population doubled during the seventeenth century. (*History of Agriculture and Prices*, I. pp. 55 &c., IV. pp. 132 &c., VI. pp. 782 &c.) Nevertheless Mr Seebohm's estimates (*Fortnightly Review*, Vol. VII. N. S.) probably give us a fairly trustworthy general view. The figures in square brackets are "merely conjectural."

	Agricultural.		Non-agricultural.		Total.
1086	1½	millions	½	million	2 millions
1348	3	,,	1	,,	4 ,,
1377	1½	,,	½	,,	2 ,,
1500	[2¼]	,,	[¾]	,,	[3] ,,
1600	[3]	,,	[1]	,,	[4] ,,
1700	[3½]	,,	[2]	,,	5½ ,,

If we are to trust Harrison (*Description of England*, Bk. II. Ch. XVI.), the muster of men able for service in 1574 amounted to 1,172,674.

The Black Death was England's only very great calamity. She was not, like the rest of Europe, liable to devastating wars, such as the Thirty Years' War which destroyed more than half the population of Germany, a loss which it required a full century to recover. (See Rümelin's instructive article on *Bevölkerungslehre* in Schönberg's *Handbuch*.)

to hinder the adjustment of the supply of population in different parts of the country to the demand for it by Settlement Laws, which made any one chargeable to a parish who had resided there forty days, but ordered that he might be sent home by force at any time within that period[1]. Landlords and farmers were so eager to prevent people from getting a "settlement" in their parish that they put great difficulties in the way of building cottages, and sometimes even razed them to the ground. In consequence the agricultural population of England was stationary during the hundred years ending with 1760; while the manufactures were not yet sufficiently developed to absorb large numbers. This retardation in the growth of numbers was partly caused by, and partly a cause of a rise in the standard of living; a chief element of which was an increased use of wheat in the place of inferior grains as the food of the common people[2].

Rise in the standard of living in the first half of the eighteenth century.

From 1760 onwards those who could not establish themselves at home found little difficulty in getting employment in the new manufacturing or mining districts, where the demand for workers often kept the local authorities from enforcing the removal clauses of the Settlement Act. To these districts young people resorted freely, and the birth-rate in them became exceptionally high; but so did the death-rate also; the net result being a fairly rapid growth of population. At the end of the century the Poor Law again began to influence the age of marriage; but this time

Later on came the development of manufactures, and freedom of migration and settlement, followed by bad harvests and war; and ill advised methods of poor relief.

[1] Adam Smith is justly indignant at this. (See *Wealth of Nations*, Bk. I. Ch. x. Part II. and Book IV. Ch. II.). The act recites (14 Charles II. c. 12, A.D. 1662) that "by reason of some defects in the law, poor people are not restrained from going from one parish to another, and thereby do endeavour to settle themselves in those parishes where there is the best stock, the largest wastes or commons to build cottages, and the most woods for them to burn and destroy: etc." and it is therefore ordered "that upon complaint made.....within forty days after any such person or persons coming, so as to settle as aforesaid, in any tenement under the yearly value of ten pounds.....it shall be lawful for any two justices of the Peace.....to remove and convey such person or persons to such parish where he or they were last legally settled." Several acts purporting to soften its harshness had been passed before Adam Smith's time; but they had been ineffective. In 1795 however it was ordered that no one should be removed until he became actually chargeable.

[2] Some interesting remarks on this subject are made by Eden, *History of the Poor*, I. pp. 560—4.

in the direction of making it unduly early. The sufferings of the working classes caused by a series of famines and by the French War made some measure of relief necessary; and the need of large bodies of recruits for the army and navy was an additional inducement to tender-hearted people to be somewhat liberal in their allowances to a large family, with the practical effect of making the father of many children often able to procure more indulgences for himself without working than he could have got by hard work if he had been unmarried or had only a small family. Those who availed themselves most of this bounty were naturally the laziest and meanest of the people, those with least self-respect and enterprise. So although there was in the manufacturing towns a fearful mortality, particularly of infants, the quantity of the people increased fast; but its quality deteriorated till the passing of the New Poor Law in 1834. Since that time the rapid growth of the town population has, as we shall see in the next chapter, tended to increase mortality, but this has been counteracted by the growth of temperance, of medical knowledge, of sanitation and of general cleanliness. Emigration has increased, the age of marriage has been slightly raised and a somewhat less proportion of the whole population are married; but, on the other hand the ratio of births to a marriage has risen[1]; with the result that population has been growing very nearly steadily[2]. Let us examine the course of recent changes a little more closely.

Since the reform of the poorlaw the growth of population has been fairly steady.

[1] But this increase in the figures shown is partly due to improved registration of births. (Farr, *Vital Statistics*, p. 97.)

[2] The following tables show the growth of the population of England and Wales from the beginning of last century. The figures for the last century are computed from the registers of births and deaths, and the poll and hearth tax returns: those since 1801 from Census returns. It will be noticed that the numbers increased as much in the twenty years following 1760 as in the preceding years. The pressure of the great war and the high price of corn is shown in the slow growth between 1790 and 1801; and the effects of indiscriminate poor law allowances, in spite of greater pressure, is shown by the rapid increase in the next ten years, and the still greater increase when that pressure was removed in the decade ending 1821. The third column shows the percentage which the increase during the preceding decade was of the population at the beginning of that decade.

In the earlier part of the century the marriage rate varied with the goodness of the harvest.

§ 8. Early in this century when wages were low and wheat was dear, the working classes generally spent more than half their income on bread: and consequently a rise in the price of wheat diminished marriages very much among them: that is, it diminished very much the number of marriages by banns. But it raised the income of many members of the well-to-do classes, and therefore often increased the number of marriages by license[1]. Since however these were but a small part of the whole, the net effect was to lower the marriage rate[2]. But as time went on, the

Year	Population 000s omitted	Increase per cent.	Year	Population 000s omitted	Increase per cent.
1700	5,475		1801	8,892	2·5
10	5,240	– 4·9*	11	10,164	14·3
20	5,565	6·2	21	12,000	18·1
30	5,796	4·1	31	13,897	15·8
40	6,064	4·6	41	15,909	14·5
50	6,467	6·6	51	17,928	12·7
60	6,736	4·1	61	20,066	11·9
70	7,428	10·3	71	22,712	13·2
80	7,953	7·1	81	25,974	14·4
90	8,675	9·1			

* Decrease.

The great growth of emigration during recent years makes it important to correct the figures for the last three decades so as to show the "natural increase," viz. that due to the excess of births over deaths.

Decade ending	mean annual birthrate per 1000	mean annual deathrate per 1000	average annual natural increment per thousand	average annual actual increment per thousand	net emigration in thousands
1861	34·15	22·25	12·61	11·93	122,
71	35·24	22·50	13·58	13·19	79,
81	35·35	21·27	15·09	14·36	164,

The last column is obtained by comparing the census returns with those of births and deaths; for there is no independent record of the net emigration from England and Wales. The following figures show the gross emigration (000s omitted) from the United Kingdom in the decades ending with the beginning of the years named

decade ending	emigration	decade ending	emigration
1831	247,	1861	2,287
41	703,	1871	1,967
51	1,685,	1881	2,228

The net emigration from the United Kingdom during the last of these decades was 1,480,000.

[1] See Dr Farr's 17th Annual Report for 1854 as Registrar-General or the abstract of it in *Vital Statistics* (pp. 72—5).

[2] For instance representing the price of wheat in shillings and the number of marriages in England and Wales in thousands, we have for 1801 wheat at 119 and marriages at 67, for 1803 wheat at 59 marriages at 94, for 1805 the numbers are 90 and 80, for 1807 they are 75 and 84, 1812 they are 126 and 82, for 1815 they are 66 and 100, for 1817 they are 97 and 88, for 1822 they are 45 and 99.

price of wheat fell and wages rose till now the working classes spend on the average less than a quarter of their incomes on bread; and in consequence the variations of commercial prosperity have got to exercise a preponderating influence on the marriage rate[1].

Later on the influence of commercial fluctuations predominated.

Since 1873 though the average real income of the population of England has indeed been increasing, its rate of increase has been less than in the preceding years and meanwhile there has been a continuous fall of prices, and consequently a continuous fall in the money-incomes of many classes of society. Now people are governed in their calculations as to whether they can afford to marry or not, more by the money income which they expect to be able to get, than by elaborate calculations of changes in its purchasing power. And therefore the standard of living among the working classes has been rising rapidly, perhaps more rapidly than at any other time in English history: their household expenditure measured in money has remained about stationary, and measured in goods has increased very fast. The English marriage-rate has fallen from 8·8 per 1000 in 1873, to 7·1 in 1886; the lowest rate that has occurred since civil registration began.

The price of wheat and the marriage rate now sometimes fall together.

Meanwhile the price of wheat has also fallen very much, and a marked fall in the marriage-rate for the whole country has often accompanied a marked fall in the price of wheat. The statistics even seem to suggest that this is not a merely casual coincidence; but that the price of bread is now so low that a further fall in its price does not perceptibly affect the marriage rate among the population at large; and that its influence in checking marriages among the agricultural

[1] Since 1820 the average price of wheat has seldom exceeded 60s. and never 75s.: and the successive inflations of commerce which culminated and broke in 1826, 1836—9, 1848, 1856, 1866 and 1873 exercised an influence on the marriage-rate about equal with changes in the price of corn. When the two causes act together the effects are very striking: thus between 1829 and 1834, there was a recovery of prosperity accompanied by a steady fall in the price of wheat and marriages rose from a hundred and four to a hundred and twenty one thousand. The marriage-rate rose again rapidly between 1842 and 1845 when the price of wheat was a little lower than in the preceding years, and the business of the country was reviving; and again under similar circumstances between 1847 and 1853 and between 1862 and 1865.

population and those directly dependent on them is sufficient to lower the average marriage-rate for the kingdom: but a longer time must elapse, and more coincidences must be noticed, before the result can be regarded as fairly established[1].

Scotland.

§ 9. There is much to be learnt from the history of population in Scotland and in Ireland. In the lowlands of Scotland a high standard of education, the development of mineral resources, and close contact with their richer English neighbours have combined to afford a great increase of average income to a rapidly increasing population. On the other hand the inordinate growth of population in Ireland before the potato-famine in 1847, and its steady diminution since that time will remain for ever landmarks in economic history.

Ireland.

International statistics.

But we must close this part of our inquiry with a rapid glance at other countries of the civilized world. Comparing the habits of different nations with the aid of the adjoining tables, we find that in the Teutonic countries of Central and Northern Europe, the age of marriage is kept late, partly in consequence of the early years of manhood being spent in the army; but that it has been very early in Russia where, at all events under the old regime, the family group insisted on the son's bringing a wife to help in the work of the household as early as possible, even if he had to leave her for a time and go to earn his living elsewhere. In the United Kingdom and America there is no compulsory service, and men marry early. In France, contrary to general opinion, early marriages on the part of men are not rare; while on the part of women they are more common than in any country

[1] Sweden has long been noted for the excellence of its vital statistics. A comparison of the marriage rate with the harvests in Sweden for the years 1749 to 1883 is given by Sir Rawson Rawson in the *Statistical Journal* for December 1885. Of course the harvest does not declare itself till part of the year's tale of marriages is made up; so we must look at the harvest of the year preceding as well as the year of any particular marriage rate. Partly for this reason and partly because the inequalities of harvests are to some extent compensated for by the storage of grain these harvest figures do not show a close correspondence with the marriage rate. But when several good, or several bad harvests come together, the effect in increasing or diminishing the marriage-rate is very clearly marked.

for which we have statistics, except the Sclavonic countries (among which we may reckon Hungary) where they are much the highest.

The marriage-rate is generally highest where the number of early marriages is the greatest; and so also is the fecundity of marriages. But there are some striking exceptions. Thus the number of children to a marriage is exceptionally low in France, and even lower in Massachusetts, though the age of marriage is not particularly high in either of these countries; and it is not very low in Sweden, where very few women marry under twenty.

The general mortality is high where the birth-rate is high. For instance both are high in Russia and Hungary; both are low in Sweden, France and Massachusetts.

In France and in Massachusetts the "natural" increase is very small; but there is an excess of immigration over emigration, which raises the actual rate of increase. In all other countries of Europe except France, Saxony and Austria proper, emigration exceeds immigration: the natural rate of increase is greater than the actual.

India differs from Russia in the same way that Russia does from the rest of Europe in having earlier marriages, a higher birth-rate and a higher death-rate. But the death-rate is more nearly equal to the birth-rate in India than in Russia.

It is a remarkable fact that the marriage-rate, the birth-rate, and the death-rate are diminishing in nearly every country of Europe. But the birth-rate in the large population of Russia is increasing rather fast, with the result that the average birth-rate for the whole of Europe is scarcely diminishing at all, though the average marriage-rate and death-rate for all Europe are diminishing rather fast. The "natural" rate of increase is on the average slightly increasing in England and Scotland (but not in Ireland) and in most other parts of Europe, and especially in those inhabited by Slavonic peoples[1].

[1] The "natural" annual increase for Europe for the years 1865—70 was at the rate of ·9 per cent., and for the years 1878—83 at the rate of 1·15 per cent.

AVERAGES FOR THE YEARS 1865 TO 1883 (WITH A FEW EXCEPTIONS).

Countries.	1 Population at last Census, 00,000's omitted.	2 Marriages per 100 living.	3 Marriages males, percentage of, under 25 years.	4 Marriages females, percentage of, under 20 years.	5 Births per 100 living.	6 Births number to a marriage.	7 Births illegitimate, percentage of total.
Europe	319,6	·83 –	39·3	24·0	3·87 –	4·7	6·4
England & Wales ..	26,0	·81 –	51·3	14·4	3·51 –	4·3	5·3
Scotland	3,7	·72 –	42·3	13·4	3·47 –	4·8	9·2
Ireland	5,2	·48 –	32·6	13·5	2·64 –	5·5	2·6
Sweden	4,6	·65 +	23·3	5·6	3·02 –	4·6	10·2
Holland	4,0	·80 –	26·6	—	3·59 –	4·5	3·4
Belgium	5,5	·72 –	22·6	6·4	3·15 –	4·4	7·1
France	37,4	·78 –	27·0	21·2	2·54 –	3·3	7·4
Prussia	27,3	·86 –	—	10·3	3·88 –	4·5	7·5
Saxony	3,0	·92 –	34·7	10·7	4·24 –	4·6	13·2
Bavaria	5,3	·85 –	18·9	6·4	3·95 +	4·7	15·2
Switzerland	2,8	·74 –	26·5	8·8	3·02 –	4·1	4·6
Austria Proper	22,1	·84 –	—	18·1	3·84 +	4·5	13·4
Hungary	13,7	1·03 –	31·7	36·0	4·30 +	4·2	7·5
Spain	16,6	·73	38·4	—	3·39 –	4·6	5·6
Italy	28,5	·77 +	26·0	16·9	3·68 –	4·8	6·8
Russia, (European)	82,9	·94 –	68·5	58·0	4·94 +	5·3	2·9
United States	50,2	—	—	—	—	—	—
Massachusetts	1,8	·94 –	40·0	18·9	2·57 –	2·7	1·4

The signs + and – in column 2, indicate that the corresponding figures for the last five years of the period were respectively greater or less than those for the first five years of the period 1865—1883; that is that the marriage-rate was tending to increase or to diminish; and similarly for columns 5 and 8. Of course there are occasional irregularities. Thus in Hungary the death-rate was excessively high in the middle of the period; and we cannot therefore say exactly what is the significance of the fact that the death-rate was a little higher at the beginning than at the end of the period. The figures for Europe do not include those for Turkey; but they do include those for Finland and Poland, though the figures for these countries are kept separate from those for Russia. The figures for Ireland must be received with caution: the number of marriages is certainly understated. In column 6 the births are compared with the marriages in the same year: but as Farr has argued, *Vital Statistics*, p. 98, they should properly be compared with the marriages six years earlier. Also in order properly to measure the fecundity of marriages the illegitimate births (column 7) should be deducted from the total number before dividing out. The figures in column 5 exclude stillborn children, except for the United Kingdom.

AVERAGES FOR THE YEARS 1865 TO 1883 (WITH A FEW EXCEPTIONS).

Countries.	8 Deaths per 100 living.	9 Deaths percentage under one year of age.	10 Deaths percentage under five years of age.	11 Annual excess of births over deaths, percentage to whole population.	12 Annual actual increase per cent. in recent years.	13 Annual actual increase per cent. in earlier years of this century.
Europe	2·81 –	21·1	32·3	1·06		
England & Wales..	2·14 –	14·9	24·9	1·37	1·32	1·37
Scotland	2·14 –	12·2	23·1	1·33	1·02	1·08
Ireland	1·78 +	9·6	16·5	0·86	·69	·18
Sweden	1·89 –	13·2	22·2	1·13	·77	·83
Holland	2·46 –	19·3	—	1·13	1·02	·71
Belgium	2·24 –	14·8	25·3	0·91	·84	·77
France	2·38 –	16·9	25·8	0·16	·25	·49
Prussia	2·65 –	21·3	32·4	1·23	·94	1·13
Saxony	2·90 –	28·2	—	1·34	1·49	1·39
Bavaria	3·06 +	30·8	39·3	0·89	·71	·55
Switzerland	2·31 –	18·3	24·9	0·71	·62	·59
Austria Proper	3·10 –	25·5	39·0	0·74	·77	·64
Hungary	3·82 +	—	—	0·48	·48	·03
Spain	2·91 –	—	—	0·48	·33	·66
Italy	2·91 –	21·0	37·8	0·77	·68	·61
Russia, (European)	3·57 –	26·7	42·3	1·37	1·29	·84
United States	—	—	—	—	2·36	3·01
Massachusetts	1·92 +	16·3	27·9	0·65	1·87	1·80

Column 11 gives the *natural* rate of increase; it is obtained by deducting column 8 from column 5. The Statistics for France, except in the last column are for the years 1870—1882: those for Russia 1867—1878, and for Switzerland 1870—1883. In all other cases the limits are very nearly 1865 and 1883 for all columns except the last two. The excess or defect of its figures over those in column 12 shew the annual percentage of the excess or defect of the emigration compared with the immigration; except in the cases of France and the United States for which the populations are taken for different areas at the beginning and end of the period. For all other countries they are calculated throughout columns 12 and 13 for the areas which the countries respectively had in 1883. Column 12 is based generally on twenty years' figures beginning about 1860, and column 13 on the preceding 60 years. The chief exception is Russia, for which the periods are 1867—79, and 1851—67. The last two columns are taken direct from Signor Bodio's *Movimento del Stato Civile, Confronti Internazionali*, 1884; the rest are taken from the tables, based on Signor Bodio's work which were published by Sir Rawson Rawson in the *Statistical Journal* for 1885.

The "actual" annual increase during the present generation has been greater than in the two preceding generations for most countries of Europe, but not for Great Britain, nor for France and Spain: and not for the United States[1].

[1] See columns 12 and 13 of the preceding Table.

CHAPTER V.

THE SUPPLY OF LABOUR, CONTINUED. HEALTH AND STRENGTH.

§ 1. WE have next to consider the conditions on which depend health and strength, physical, mental and moral. They are the basis of industrial efficiency, on which the production of material wealth depends; while conversely the chief importance of material wealth lies in the fact that, when wisely used, it increases the health and strength, physical, mental and moral of the human race.

Health and strength are the basis of productive work.

In many occupations industrial efficiency requires little else than physical vigour; that is, muscular strength, a good constitution and energetic habits. In estimating muscular, or indeed any other kind of strength for industrial purposes, we must take account of the number of hours in the day, of the number of days in the year, and the number of years in the lifetime, during which it can be exerted. But with this precaution we can measure a man's muscular exertion by the number of feet through which his work would raise a pound weight, if it were applied directly to this use; or in other words by the number of "foot pounds" of work that he does[1].

Physical exertion can be measured in foot pounds of work.

[1] This measure can be applied directly to most kinds of navvies' and porters' work, and indirectly to many kinds of agricultural work. In a controversy that was waged after the great agricultural lock-out as to the relative efficiency of unskilled labour in the South and North of England, the most trustworthy measure was found in the number of tons of material that a man would load into a cart in a day. Other measures have been found in the number of acres reaped or mown, or the number of bushels of corn reaped &c.: but these are unsatisfac-

In backward countries, particularly where there is not much use of horses or other draught animals, a great part of men's and women's work may be measured fairly well by the muscular exertion involved in it. But in England less than one-sixth of the industrial classes are now engaged on work of this kind; while the force exerted by steam-engines alone is more than twenty times as much as could be done by the muscles of all Englishmen.

But it depends on nervous as well as muscular strength.

Although the power of sustaining great muscular exertion seems to rest on constitutional strength and other physical conditions, yet even it depends also on force of will, and strength of character. In the war of 1870 the Berlin University Corps, which seemed to be weaker than the average, was found to be able to bear more fatigue than almost any other corps. Energy of this kind may perhaps be regarded as the strength of the man, as distinguished from that of his body, is moral rather than physical; but yet it depends on the physical condition of nervous strength. This must be distinguished from nervousness, which, as a rule, indicates a general deficiency of nervous strength; though sometimes it proceeds from nervous irritability or want of balance. A man who has great nervous strength in some directions may have but little in others; the artistic temperament in particular often developes one set of nerves at the expense of others: but it is the weakness of some of the nerves, not the strength of the others that leads to nervousness. The most perfect artistic natures seem not to have been nervous: Leonardo da Vinci and Shakespeare for example. This strength of the man himself, this resolution, energy and self-mastery, or in short this "vigour," rests on the physical basis of nervous strength and is the source of all progress: it shows itself in great

tory, particularly for comparing different conditions of agriculture: since the implements used, the nature of the crop and the mode of doing the work all vary widely. Thus nearly all comparisons between mediæval and modern work and wages based on the wages of reaping, mowing &c. are valueless until we have found means to allow for the effects of changes in the methods of agriculture. It costs for instance less labour than it did to reap by hand a crop that yields a hundred bushels of corn; because the implements used are better than they were: but it may not cost less labour to reap an acre of corn; because the crops are heavier than they were.

deeds, in great thoughts and in the capacity for true religious feeling.

General vigour cannot be measured but can be estimated roughly.

Vigour works itself out in so many forms, that no simple measure of it is possible. But we are all of us constantly estimating vigour, and thinking of one person as having more "backbone," more "stuff in him," or as being "a stronger man" than another. Business men even in different trades, and University men even when engaged in different studies get to estimate one another's strength very closely. It soon becomes known if less strength is required to get a "first class" in one study than another.

Physical health and longevity.

§ 2. In discussing the growth of numbers a little has been said incidentally of the causes which determine length of life: but they are in the main the same as those which determine constitutional strength and vigour, and they will occupy our attention again in the present chapter.

The influence of climate.

The first of these causes is the climate. In warm countries we find early marriages and high birth-rates, and in consequence a low respect for human life: this has probably been the cause of a great part of the high mortality that is generally attributed to the insalubrity of the climate. In England popular opinion has insisted that a "warm Yule-tide makes a fat churchyard;" but statistics prove beyond question that it has the opposite effect: the average mortality is highest in the coldest quarter of the year, and higher in cold winters than in warm[1]. But in warm climates the autumn is generally the most unhealthy part of the year. In India moisture is more hurtful to health and strength than either heat or cold: while the dry cold of Colorado, Canada and the Alps is often beneficial to those who are well fed, clothed and housed.

[1] A high temperature increases the deaths from such diseases as those of the liver and the alimentary canal, but in England it diminishes to a greater extent the deaths from diseases of the lungs and old age. (See an article by Dr Guy, *On Temperature and its relation to mortality*, *Statistical Journal*, June, 1881, also Farr, *Vital Statistics*, pp. 412, &c.) The error of popular opinion on this subject illustrates well the untrustworthiness of those general impressions on which much of our social history is based. Vols. XI. and XII. of the *Tenth Census of the United States* contain some interesting investigation on the influence of geographical conditions on vital statistics.

A warm climate impairs vigour. It is not altogether hostile to high intellectual and artistic work: but it prevents people from being able to endure very hard exertion of any kind for a long time. More sustained hard work can be done in the cooler half of the temperate zone than anywhere else; and most of all in places such as England and her counterpart New Zealand, where sea-breezes keep the temperature nearly uniform. The summer heats and winter colds of many parts of Europe and America, where the mean temperature is moderate have the effect of shortening the year for working purposes by about two months. Extreme and sustained cold is found to dull the energies, partly perhaps it causes people to spend much of their time in close and confined quarters: inhabitants of the Arctic regions are generally incapable of long-continued severe exertion.

Race qualities.

Vigour depends partly on race qualities: but these, so far as they can be explained at all, seem to be chiefly due to climate. Race history is a fascinating but disappointing study for the economist: for conquering races generally incorporated the women of the conquered; they often carried with them many slaves of both sexes during their migrations, and slaves were less likely than freemen to be killed in battle or to adopt a monastic life. In consequence nearly every race had much servile, that is mixed blood in it: and as the share of servile blood was largest in the industrial classes, a race history of industrial habits seems impossible.

The necessaries of life. Food.

§ 3. Climate has also a large share in determining the necessaries of life; the first of which is food. It must supply the nitrogenous and other elements that are required to build up growing tissues and to repair the waste of the body. It must also afford heat, some of which can be converted into muscular force; and for this purpose carbonaceous food, when it can be properly digested is the cheapest[1]. Much also depends on the proper preparation

[1] The nitrogenous elements are most easily got from animal food. They exist also in vegetable foods; but not in a form that is so easily digested and assimilated. The supply of it is most abundant in beans, peas, lentils &c., and to a less extent in cereals; but in these it is found chiefly in the outer parts of the grain,

of food, and a skilled housewife with ten shillings a week to spend on food will often do more for the health and strength of her family than an unskilled one with twenty. The great infant mortality among the poor is largely due to the want of care and judgment in preparing their food; and those who do not entirely succumb to this want of motherly care often grow up with enfeebled constitutions. In all ages of the world except the present, want of food has caused wholesale destruction of the people. Even in London in the seventeenth and eighteenth centuries the mortality was eight per cent. greater in years of dear corn than in years of cheap corn[1]. But gradually the effects of increased wealth and improved means of communication are making themselves felt nearly all over the world; the severity of famines is mitigated even in such a country as India; and they are unknown in Europe and in the New World. In England now want of food is scarcely ever the direct cause of death: but it is a frequent cause of that general weakening of the system which renders it unable to resist disease; and it is a chief cause of industrial inefficiency.

Scarcity that increases mortality;

We have already seen that the necessaries for efficiency vary with the nature of the work to be done, but we must now examine this subject a little more closely.

As regards muscular work in particular there is a close connection between the supply of food that a man has, and his available strength. If the work is intermittent, as that of a dock labourer, a cheap but nutritious grain diet is sufficient. But for very heavy continuous strains such as are involved in puddlers' and the hardest navvies' work, food is required which can be digested and assimilated even when the body is tired. This quality is still more essential in the food of the higher grades of labour which involve increased nervous strain, though the quantity required is generally small.

and scarcity that lowers vigour.

which are preserved in wholemeal flour, but are thrown away when white flour is made. Vegetable food generally, but especially the cereals, and potatoes give abundant supplies of the carbonaceous or starch elements.

[1] This was proved by Farr who eliminated disturbing causes by an instructive statistical device (*Vital Statistics*, p. 139).

Clothing, house-room and firing.

After food, the next necessaries of life and labour, are clothing, house-room and firing. When they are deficient, the mind becomes torpid, and ultimately the physical constitution is undermined. When clothing is very scanty it is generally worn night and day; and the skin is allowed to be enclosed in a crust of dirt. A deficiency of house-room, or of fuel causes people to live in a vitiated atmosphere which is injurious to health and vigour; and not the least of the benefits which English people derive from the cheapness of coal, is the habit, peculiar to them, of having well-ventilated rooms even in cold weather. Badly-built houses with imperfect drainage cause diseases which even in their slighter forms weaken vitality in a wonderful way; and overcrowding leads to moral evils which diminish the numbers and lower the character of the people.

Rest.

Rest is as essential for the growth of a vigorous population as the more material necessaries of food, clothing, &c. Overwork of every form lowers vitality, but anxiety, worry, and excessive mental strain have a fatal influence in undermining the constitution, in impairing fecundity and diminishing the vigour of the race.

Hopefulness, freedom and change.

§ 4. Next come three closely allied conditions of vigour, namely hopefulness, freedom, and change. All history is full of the record of inefficiency caused in varying degrees by slavery, serfdom, and other forms of civil and political oppression and repression. Freedom and hope increase not only man's willingness but also his power for work; physiologists tell us that a given exertion consumes less of the store of nervous energy if done under the stimulus of pleasure than of pain: and without hope there is no enterprise. Security of person and property are two conditions of this hopefulness and freedom; but security always involves restraints on freedom, and it is one of the most difficult problems of civilisation to discover how to obtain the security which is a condition of freedom without too great a sacrifice of freedom itself. Changes of work, of scene, and of personal associations bring new thoughts, call attention to the imperfections of old methods, stimulate a "divine discontent," and in every way develop creative energy.

Change and hope are chief causes of the prosperity of colonies.

In all ages colonies have been apt to outstrip their mother countries in vigour and energy. This has been due partly to the abundance of land and the cheapness of necessaries at their command; partly to that natural selection of the strongest characters for a life of adventure, and partly to physiological causes connected with the mixture of races: but perhaps the most important cause of all is to be found in the hope, the freedom and the changefulness of their lives. By converse with others who come from different places, and have different customs, travellers learn to put on its trial many a habit of thought or action which otherwise they would have always acquiesced in as though it were a law of nature. Moreover a shifting of places enables the powerful and original minds to find full scope for their energies and to rise to important positions: whereas those who stay at home are often over much kept in their places. Few men are prophets in their own land; neighbours and relations are generally the last to pardon the faults and to recognize the merits of those who are less docile and more enterprising than those around them. It is doubtless chiefly for this reason that in almost every part of England a disproportionately large share of the best energy and enterprise is to be found among those who were born elsewhere.

But change may be excessive.

But change may be carried to excess; and when population shifts so rapidly, that a man is always shaking himself loose from his reputation, he loses some of the best external aids to the formation of a high moral character. The extreme hopefulness and restlessness of those who wander to new countries lead to much waste of effort in half acquiring technical skill, and half finishing tasks which are speedily abandoned in favour of some new occupation.

The higher development of character depends chiefly on the influence of mothers.

Freedom so far has been regarded as freedom from external bonds. But that higher freedom, which comes of self-mastery[1], is an even more important condition for the highest work. The elevation of the ideals of life on which this depends, is due on the one side to political and economic causes, and on the other to personal and religious influences;

[1] Hegel's subjective freedom. See above Bk. I. Ch. II. § 4.

among which the influence of the mother in early childhood is supreme.

The influence of occupation.

§ 5. Bodily and mental health and strength are much influenced by occupation. The rate of mortality is low among ministers of religion and schoolmasters; among the agricultural classes, and in some other industries such as those of wheelwrights, shipwrights and coal-miners. It is high in lead and tin mining, in file-making and earthenware manufacture. But neither these nor any other regular trade show as high a rate of mortality as is found among London general labourers and costermongers; while the highest of all is that of servants in inns. Such occupations are not directly injurious to health, but they attract those who are weak in physique and in character and they encourage irregular habits[1].

Factory and Education Acts.

At the beginning of this century the conditions of factory work were needlessly unhealthy and oppressive for all, and especially for young children. But Factory and Education Acts have removed the worst of these evils from factories; though many of them still linger about domestic industries and the smaller workshops. Infant mortality also is diminishing, though there remains much room for improvement in this direction.

The injuries caused where mothers of young children work away from home.

The higher wages, the greater intelligence, and the better medical facilities of townspeople should cause infant mortality to be much lower among them than in the country. But it is generally higher, especially where there are factories. This arises from that survival of mediæval fallacies, to which we have already referred[2], and which leads some people to think and act as though the family income was increased by all that the mother earns when she goes out to

[1] A good account of the influence of occupation on death rates is given in the supplement to the forty-fifth (1885) Annual Report of the Registrar, *Journal*, pp. xxv. to lxiii. See also Farr's *Vital Statistics*, pp. 392—411, Mr Humphreys' paper on *Class Mortality Statistics* in the *Statistical Journal* for June, 1887 and the literature of the Factory Acts generally.

[2] See above Bk. II. Ch. IV. Roscher (*Political Economy*, § 242) says that the Jewish population of Prussia has increased faster than the Christian, though its birth-rate has been lower, the chief cause being that Jewish mothers seldom go away from their homes to work.

work; though a little consideration would often show that the things she can buy with her earnings are of far less importance for the health and happiness of the family than the mere material services she could have rendered them if she had stayed at home, to say nothing of her moral influence in educating the children, in keeping the household in harmony and making it possible for her husband to be cheered and soothed in his evenings at home. This fact is getting to be understood by the better class of artisans and their wives; and there are not now very many mothers with young families at work in English and American factories.

The towns attract the ablest of those born in the country and town life destroys their strength.

§ 6. In almost all countries there is a constant migration towards the towns[1]. The large towns and especially London absorb the very best blood from all the rest of England; the most enterprising, the most highly gifted, those with the highest physique and the strongest characters go there to find scope for their abilities. But by the time their children and children's children have grown up without healthy play,

[1] Thus at the beginning of this century the population of London was just under a million, and that of the sixteen next largest towns in England and Wales was about two-thirds of a million: but in 1881 each of these figures had risen to nearly four millions. That is the population of the very large towns has increased more than four-fold, while that of the rural districts has not nearly doubled. A third of the population of England now lives in towns, having more than a hundred thousand inhabitants, another third in towns having more than three but not more than a hundred thousand inhabitants, and only a third in rural districts.

Since the beginning of this century, while the population of France has increased only by one-third, that of Paris has increased four-fold (from about six to twenty-four hundred thousand), and that of the nine next largest towns has increased three-fold (from about six to eighteen hundred thousand).

In the United States of America at the beginning of this century only four per cent. of the population lived in cities of eight thousand inhabitants and upwards; but more than twenty-two per cent. in 1880.

In Germany the towns increase at the expense of the country by about one half per cent. of the population every year.

In each of these countries the growth of the town population is in a great measure due to immigration from the country. But especially is this the case in France. In the five years 1876—81, the excess of births over deaths in Paris was but 23,000 while the total increase of population was 280,000: in the 46 towns next in size to Paris the excess of births over deaths was 15,000 and the total increase of population was 838,000. In Lyons and Marseilles, where there are many Italians, though the total population increased by 33,000 and 41,000 respectively, the births actually fell short of the deaths by 3,000 and 2,000 respectively. (See M. Toussaint Loua's paper reproduced in the *Statistical Journal* for December, 1885.)

and without fresh air there is little trace left of their original vigour. This is seen even in trades that require but little muscular strength; only a very small proportion of those artisans to whom London owes its pre-eminence as a centre of highly skilled work come from parents who were born there; and there are scarcely any whose grandparents were born there.

The mortality statistics of towns are an imperfect measure of the real injury caused by living in them.

The death-rate of large towns gives no just indication of their effect on the health and vigour of the people; chiefly because many of the town influences which lower vigour, do not appreciably affect mortality. Other reasons are that the immigrants into towns are generally picked lives and in the full strength of youth; and that young people whose parents live in the country generally go home to die. The mortality of females in London between the ages of fifteen and thirty-five is for this reason abnormally low[1]. If however a town has a stationary population its vital statistics are more easily interpreted; and selecting Coventry as a typical town, Mr Galton has calculated that the adult children of artisan townsfolk are little more than half as numerous as those of labouring people who live in healthy country districts[2]. When a place is decaying, the young and strong and hearty drift away from it; leaving the old and the infirm behind them and consequently the birth-rate is generally low. On the other hand a centre of industry that is attracting population is likely to have a very high birth-rate, because it has more than its share of people in the full vigour of life. This is especially the case in the coal and iron towns, partly because they do not suffer, as the textile towns do, from a deficiency of males; and partly because miners as a class marry early. In some of them, though the death-rate is high, the excess of the birth-rate over it exceeds 20 per thousand of the popula-

[1] See Mr Welton in the *Statistical Journal*, January, 1880.

[2] *Statistical Journal*, March, 1873. In the United States infant mortality, measured by the number out of every 1000 of male children who die before they are a year old is 109 in the cities, and only 44 in the country. On the South Atlantic coast it is 345 in Charleston and 141 in the country. On the Pacific coast it is 159 in San Francisco and Oakland, but only 50 for the surrounding country. (See *Tenth Census*, Vol. XI.)

tion[1]. The death-rate is generally highest in towns of the second order, chiefly because their sanitary arrangements are not yet as good as those of the very largest towns.

The need for playgrounds and strict Sanitary Laws in large towns.

There is perhaps no better use of public and private money than in providing public parks and playgrounds in large cities, in contracting with railways to increase the number of the workmen's trains run by them, and in helping those of the working classes who are willing to leave the large towns to do so, and to take their industries with them; while money spent on reducing the cost of living in large towns by building workmen's houses at a loss or in other ways, is likely to do almost as much harm as good, and sometimes even more. If the numbers of the working classes in the large towns are reduced to those whose work must be carried on there, the scarcity of their labour will enable them to command high wages; and therefore if sanitary laws and rules against overcrowding are rigidly enforced, and space enough is secured to provide opportunities of healthy play for their children, those who live in large towns will have a better chance of leaving a healthy progeny behind them; and meanwhile some check will be given to the migration from the country to the towns[2].

Nature left to herself tends to weed out the weak, but man has interfered.

§ 7. In the earlier stages of civilization natural selection and competition caused those who were strongest and most vigorous to leave the largest progeny behind them. It is to this cause, more than any other, that the progress of the human life, as of all other forms of life, is chiefly due; and though in the later stages of civilization the rule has been for the upper classes to marry late, and in consequence to have fewer children than the working classes, this has been compensated for by the fact that among the working classes themselves the old rule has held; and the vigour of the nation that is tending to be damped out among the upper classes is thus replenished by the fresh stream of strength that is constantly welling up from below. But in France for a long time, recently in America, and to a less extent in

[1] Dr Beddoe on the *Progress of Public Health*.

[2] See an article on *Where to house the London Poor* by the present author in the *Contemporary Review*, for February, 1883.

England, there has been some tendency for the abler and more intelligent part of the working class population to avoid having large families; and this is a source of great danger.

Much well meant human action has the effect of checking the increase of the strongest and enabling the weakest to survive.

There are increasing reasons for fearing, that while the progress of medical science and sanitation are saving from death a continually increasing number of the children of those who are feeble physically and mentally, those who are strong are tending to defer their marriages and in other ways to limit the number of children whom they leave behind them. The causes are partly selfish and partly unselfish; and the former probably do less harm than the latter; for perhaps it is best for the world that hard and frivolous people should leave but few descendants of their own type. But many people marry late, and have but few children, in consequence of a desire to secure as good a social position as possible for themselves and their children. This desire contains many elements that fall short of the highest ideals of human aims, and in some cases, a few that are distinctly base; but after all it has been one of the chief factors of progress; and those who are affected by it include many of the best and strongest of the race. Such persons with a high sense of duty, are specially likely to be influenced by the doctrine that large families are injurious to the world and that they can do better for a small than for a large family. We must postpone to a later stage the enquiry how far the real demand for labour is capable of being increased, how far the growth of population involves an increased pressure on the means of subsistence. But looking now only at the side of supply, and considering the causes that determine the supply of vigour, we must affirm with Mr Galton that if the doctrine were to be acted on generally by the upper part of the nation including the great body of the more intelligent and capable artisans, but not the lowest classes, it would cause the race to decay[1].

[1] It has already been noticed that the celibacy of the religious orders probably did not affect the growth of numbers very much: it gave a particular direction to the forces tending to keep that growth in check, but it probably did not add much to their effects. Its main influence was not on the quantity but on the quality of the population. "Whenever a man or woman was possessed of a gentle nature

The State gains much from large families of healthy children.

It must be remembered that the members of a large family educate one another, they are usually more genial and bright, often more vigorous in every way than the members of a small family. Partly, no doubt, this is because their parents were of unusual vigour; and for a like reason they in their turn are likely to have large and vigorous families. The progress of the race is due to a much greater extent than appears at first sight to the descendants of a few exceptionally large and vigorous families.

The evils of infant mortality.

But on the other hand there is no doubt that the parents can often do better in many ways for a small family than a large one. Other things being equal, an increase in the number of children who are born causes an increase of infantile mortality; and that is an unmixed evil. The birth of children who die early from want of care and adequate means is a useless strain to the mother and an injury to the rest of the family[1]. And though these evils may be reduced within small compass by those parents who are exceptionally good managers; yet example is always

that fitted him or her to deeds of charity, to meditation, to literature or to art, the social condition of the time was such that they had no refuge elsewhere than in the bosom of the Church. But the Church chose to preach and enact celibacy..... She practised those arts which breeders would use who aimed at creating ferocious, churlish, and stupid natures. No wonder that club law prevailed for centuries in Europe." Meanwhile by her persecutions of those who were "the most fearless, truthseeking, and intelligent in their modes of thought and therefore the most suitable parents of a high civilisation, she put a strong check, if not a direct stop to their progeny." (*Hereditary Genius*, p. 356).

In modern times the same evil on a larger scale was seen in the Southern States of America, where manual work became disgraceful to the white man; so that if unable to have slaves himself he led a paltry degenerate life, and seldom married. Again, on the Pacific Slope, there were at one time just grounds for fearing that all but highly skilled work would be left to the Chinese; and that the white men would live in an artificial way in which a family became a great expense. In this case Chinese lives would have been substituted for American, and the average quality of the human race would have been lowered.

[1] The extent of the infant mortality that arises from preventable causes may be inferred from the facts that while the annual death-rate of children under five years of age is only about two per cent. in the families of peers and is less than three per cent. for the whole of the upper classes, it is between six and seven per cent. for the whole of England. For the upper classes the expectation of life at birth is 53 years, and at ten years of age it is 52 years: but for the whole of England the expectation of life at birth is only 41 years, while at ten years of age, instead of being lower, it rises to 47 years. (See Mr Humphreys' paper in the *Statistical Journal* for June, 1883).

more potent than precept, and habits of prudence will not spread among the people, so long as the natural leaders of the people marry early and have larger families than they can expect to bring up well if they should meet with any considerable misfortunes in their own career.

Practical conclusion.

There are other considerations of which account must be taken. But so far as the points discussed in this chapter are concerned, it seems *prima facie* advisable that people should not bring children into the world till they can see their way to giving them at least as good an education both physical and mental as they themselves had; and that it is best to marry moderately early provided there is sufficient self-control to keep the family within the requisite bounds without transgressing moral laws. The general adoption of these principles of action, combined with an adequate provision of fresh air and of healthy play for our town populations, could hardly fail to cause the strength and vigour of the race to improve. And we shall presently find reasons for believing that if the strength and vigour of the race improves, the increase of numbers will not for a long time to come cause a diminution of the average real income of the people.

The swaying to and fro of the forces of good and evil.

§ 8. Thus then the progress of knowledge, and in particular of medical science, the ever growing activity and wisdom of government in all matters relating to health, and the increase of material wealth, all tend to lessen mortality and to increase health and strength, and to lengthen life. On the other hand vitality is lowered and the death-rate raised by the rapid increase of town life, and by the tendency of the higher strains of the population to marry later and to have fewer children than the lower. If the former set of causes were alone in action, but so regulated as to avoid the danger of over-population, it is probable that man would quickly rise to a physical and mental excellence far superior to any that the world has yet known; while if the latter set acted unchecked, he would speedily degenerate.

The former slightly preponderate.

As it is, the two sets hold one another very nearly in balance, the former slightly preponderating. While the

population of England is growing nearly as fast as ever, those who are out of health in body or mind are certainly not an increasing part of the whole; and the rest are much better fed and clothed, and with a few exceptions are stronger than they were. The old English Life Table, based on the figures of the years 1838—54, shows one-half of the males dying before they are 45, and of the females before they are 47, while the New Table, based on the figures of 1871—80, raises these ages to 47 and 52 respectively. The death-rate is much lower than it was in the earlier years of life, though higher in the later years: and of the total number of years added to life by the greater longevity, two-thirds fall within the most important period of 25 to 65 years of age[1].

[1] See Supplement to the 45th Annual Report of the Registrar General; and Mr Humphreys' paper in the *Statistical Journal* for June, 1883. On the comparative length of life in different countries, see Dr Bodio's work already referred to, and Dr Perozzo's *Sulla Classificazione per Eta*, &c.

CHAPTER VI.

THE SUPPLY OF LABOUR, CONTINUED. INDUSTRIAL TRAINING.

§ 1. HAVING discussed the causes which determine the growth of a numerous and vigorous population, we have next to consider the training that is required to develop its industrial efficiency.

The form which natural vigour takes depends largely on training.

The natural vigour that enables a man to attain great success in any one pursuit would generally have served him in good stead in almost any other. But there are exceptions. Some people, for instance, seem to be fitted from birth for an artistic career, and for no other; and occasionally a man of great practical genius is found to be almost devoid of artistic sensibility. But in spite of these individual exceptions, a race that has great nervous strength seems always to be able, under favourable conditions to develop in the course of a few generations ability of any kind that it may wish to have. A race that has acquired vigour in war or in the ruder forms of industry sometimes gains intellectual and artistic power of a high order very quickly; and nearly every literary and artistic epoch of classical and mediæval times has been due to a people of great nervous strength, who have been brought into contact with noble thoughts before they have acquired much taste for artificial comforts and luxuries.

The intellectual vigour of

The growth of this taste in our own age has prevented us from taking full advantage of the opportunities our

largely increased resources give us of consecrating the greater part of the highest abilities of the race to the highest aims. But perhaps the intellectual vigour of the age appears less than it really is, in consequence of the growth of scientific pursuits. For in art and literature success is often achieved while genius still wears the fascinating aspect of youth; but in modern science so much knowledge is required for originality, that before a student can make his mark in the world, his mind has often lost the first bloom of its freshness; and further the real value of his work is not often patent to the multitude as that of a picture or poem generally is[1]. In the same way the solid qualities of the modern machine-tending artisan are rated more cheaply than the lighter virtues of the mediæval handicraftsman. This is partly because we are apt to regard as commonplace those excellences which are common in our own time; and to overlook the fact that the term "unskilled labourer" is constantly changing its meaning.

our own age might be better used. But perhaps we are inclined to underestimate it.

§ 2. Very backward races are unable to keep on at any kind of work for a long time; and even the simplest forms of what we regard as unskilled work is skilled work relatively to them; for they have not and they cannot get, except by a long course of training, the assiduity, which it demands; but where education is universal, an occupation may fairly be classed as unskilled, though it requires a knowledge of reading and writing. Again in districts in which manufactures have long been domiciled, a habit of responsibility, of carefulness and promptitude in handling expensive machinery and materials becomes the common property of all; and then

Skilled and unskilled labour.

Skill with which we are familiar we often do not recognize as skill.

[1] In this connection it is worth while to notice that the full importance of an epoch-making idea is often not perceived in the generation in which it is made: it starts the thoughts of the world on a new track, but the change of direction is not obvious until the turning point has been left some way behind. In the same way the mechanical inventions of every age are apt to be underrated relatively to those of earlier times. For a new discovery is seldom fully effective for practical purposes till many minor improvements and subsidiary discoveries have gathered themselves around it: an invention that makes an epoch is very often a generation older than the epoch which it makes. Thus it is that each generation seems to be chiefly occupied in working out the thoughts of the preceding one; while the full importance of its own thoughts is as yet not clearly seen.

much of the work of tending machinery is said to be entirely mechanical and unskilled, and to call forth no human faculty that is worthy of esteem. But in fact it is probable that not one-tenth of the present populations of the world have the mental and moral faculties, the intelligence, and the self-control that are required for it: perhaps not one-half could be made to do the work well by steady training for two generations. Even of a manufacturing population only a small part are capable of doing many of the tasks that appear at first sight to be entirely monotonous. Machine-weaving, for instance, simple as it seems, is divided into higher and lower grades; and most of those who work in the lower grades have not "the stuff in them" that is required for weaving with several colours. And the differences are even greater in industries that deal with hard materials, wood, or metals, or ceramics.

Mere manual skill is steadily losing importance relatively to general intelligence and vigour of character.

Some kinds of manual work require long-continued practice in one set of operations, but these cases are not very common, and they are becoming rarer: for machinery is constantly taking over work that requires manual skill of this kind. It is indeed true that a general command over the use of one's fingers is a very important element of industrial efficiency; but this is the result chiefly of nervous strength, and self-mastery. It is of course developed by training, but the greater part of this may be of a general character and not special to the particular occupation; just as a good cricketer soon learns to play tennis well, so a skilled artisan can often move into other trades without any great and lasting loss of efficiency.

Manual skill that is so specialized that it cannot be transferred from one occupation to another is becoming steadily a less and less important factor of industrial efficiency. Putting aside for the present the faculties of artistic perception and artistic creation, we may say that what makes one occupation higher than another, what makes the workers of one town or country more efficient than those of another is chiefly a superiority in general sagacity and energy which is not specialized to any one trade.

To be able to bear in mind many things at a time, to

have everything ready when wanted, to act promptly and show resource when anything goes wrong, to accommodate oneself quickly to changes in details of the work done, to be steady and trustworthy, to have always a reserve of force which will come out in emergency, these are the qualities which make a great industrial people. They are not peculiar to any occupation; they are wanted in all; and if they cannot always be easily transferred from one trade to other kindred trades, the chief reason is that they require to be supplemented by some knowledge of materials and familiarity with special processes.

General and Specialized ability.

We may then use the term GENERAL ABILITY to denote those faculties and that general knowledge and intelligence which are in varying degrees the common property of all the higher grades of industry: while that manual dexterity and that acquaintance with particular materials and processes which are required for the special purposes of individual trades may be classed as SPECIALIZED ABILITY.

The causes that determine the supply of general ability.

§ 3. General ability depends largely on the surroundings of childhood and youth. In this the first and far the most powerful influence is that of the mother, when she does not abdicate it for the sake of dearly bought wages or for more selfish purposes[1]. Next comes the influence of the father, of other children, and in some cases of servants[2]. As years pass on the child of the working man learns a great deal from what he sees and hears going on around him. Wherever any high class industry is localized the habits of mind

The home.

[1] According to Mr Galton the statement that all great men have had great mothers goes too far: but that shows only that the mother's influence does not outweigh all others; not that it is not greater than any one of them. He says that the mother's influence is most easily traceable among theologians and men of science, because an earnest mother leads her child to feel deeply about great things; and a thoughtful mother does not repress, but encourages that childish curiosity which is the raw material of scientific habits of thought.

[2] There are many fine natures among domestic servants. But those who live in very rich houses are apt to get self-indulgent habits, to over-estimate the importance of wealth and generally to put the lower aims of life above the higher in a way that is not common with independent working people. The company in which the children of some of our best houses spend much of their time, is less ennobling than that of the average cottage. Yet in these very houses, no servant who is not specially qualified is allowed to take charge of a young pointer or a young horse.

and body required for it are as is said "in the air;" and are in a great measure acquired unconsciously.

School.

In school the faculties are educated and the mind is prepared for the serious work of life. Many must cease their school work when they have but learnt the elements of reading, writing, arithmetic and drawing; and it is sometimes argued that the child would be better fitted to earn his living if part of the little time spent on these subjects were given to practical work. But this suggestion seems to overlook the fact that the advance made during school-time is not nearly so important as the power of future advance which a school education gives. Reading and writing afford the means of that wider intercourse which leads to breadth and elasticity of mind, and which is enabling the working man of to-day to be as capable a citizen as was the country gentleman of last century[1].

The functions of liberal education.

Before the recent great progress of science and art the old grammar school education was the only one by which the average school master could induce his pupils to use their minds in anything higher than the absorption of knowledge. It was therefore rightly called liberal, because it was the best that was to be had. But it failed in its aim of familiarizing the citizen with the great thoughts of antiquity; it was generally forgotten as soon as school time was over; and it raised an injurious antagonism between business and culture. Now however the advance of knowledge is enabling us to use science and art to supplement the curriculum of the grammar school, and to give to those who can afford it an education that develops their best faculties, and starts them on the track of thoughts which will most stimulate the higher activities of their minds in after life.

But while a truly liberal general education adapts the mind to use its best faculties in business and to use business itself as a means of increasing culture, it does not concern

[1] It is true that learning to spell does not educate the faculties to any considerable extent, and that the time spent on it is nearly wasted. If spelling and pronunciation could be brought into harmony in the English language, as they are in most other languages, children would, it has been estimated, be able to read fluently a year earlier than they are now.

itself with the details of particular trades. That task is left for technical education.

Technical education.

§ 4. Technical education has in like manner raised its aims in recent years. It used to mean little more than imparting that manual dexterity and that elementary knowledge of machinery and processes which an intelligent lad quickly picks up for himself when his work has begun; though if he has learnt it beforehand, he can perhaps earn a few shillings more at starting than if he had been quite ignorant. But such so-called education does not develop faculties; it rather hinders them from being developed. A lad who has picked up the knowledge for himself has educated himself by so doing, and is likely to make better progress in the future than one who has been taught after this fashion. Technical education is however out-growing mistakes of this kind. It is aiming, on the one side, at giving a general command over the use of eyes and fingers[1]; though there are signs that this work is being taken over by general education, to which it properly belongs. On the other side it aims at imparting artistic skill and knowledge, and methods of investigation, which are useful in particular occupations, but are seldom properly acquired in the course of practical work.

The strength and the weakness of continental systems.

Continental systems of technical education give habits of order, assiduity and docility, they store the mind with useful information; and the German system, in particular, has produced a race of men who are better fitted in some respects to do the work required of the middle ranks of industry than any that the world has ever seen. Aided by their knowledge of modern languages German clerks, commercial agents and scientific advisers are supplanting others, in England, on the Continent, in South America and elsewhere. Those of them who have natural resource and can turn the advantages of their position to good account, become the heads of firms, and some of the best business of the world

[1] As Mr Nasmyth says, if a lad having dropped two peas at random on a table, can readily put a third pea midway in a line between them, he is on the way to become a good mechanic. Command over eye and hand is trained in the ordinary English games, no less than in the playful work of the Kinder Garten. Drawing has always been on the border line between work and play.

is passing into their hands. They also make excellent administrators under government, and that is a chief reason why business under the control of government compares so much more favourably with that under private management in Germany than in England. But the balance of evidence seems to show that the German system, excellent as it is in many ways, is not in all respects well suited for developing that daring energy and restless enterprise which go to the root of the hardest difficulties. For this purpose the existing English system is already superior in some respects; and its deficiencies, though still great, are rapidly being filled up[1].

The aims of English education reform.

According to the best English opinions, technical education for the higher ranks of industry should keep the aim of developing the faculties almost as constantly before it as general education does. It should rest on the same basis as a thorough general education, but should go on to work out in detail special branches of knowledge for the benefit of particular trades[2]. Our aim should be to add the scientific training in which the countries of Western Europe are ahead of us to that daring and restless energy and those practical instincts, which seldom flourish unless the best years of youth are spent in the workshop; recollecting always that whatever a youth learns for himself by direct experience in

[1] On the whole we may say that at present England is very much behind hand as regards the provision for the commercial as well as the technical education of the proprietors and principal managers of industrial works; but that, chiefly through the influence of the Science and Art Department of South Kensington, elementary (or lower secondary) scientific and technical education covers a wider area in this than in any other country. Unfortunately however these advantages are prevented from being turned to the best account by the still backward condition of our elementary schools. Compare Sir Bernhard Samuelson's Preface to Mr Montague's excellent summary of the Report of the Commission on Technical Education.

[2] See the Report 1884 of the Commissioners on Technical Instruction, Vol. I. pp. 506, 514, also the opinions of Sir Lowthian Bell, Prof. Huxley, Dr Siemens and others in Vol. III. of the Report, also Scott Russell's *Technical Education*. See also the various publications of the National Association for the Promotion of Technical Education. One of the weakest points of technical education is that it does not educate the sense of proportion and the desire for simplicity of detail. The English, and to an even greater extent, the Americans, have acquired in actual business the faculty of rejecting intricacies in machinery and processes, which are not worth what they cost, and practical instinct of this kind often enables them to succeed in competition with Continental rivals who are much better educated.

well-conducted works, teaches him more and stimulates his mental activity more than if it were taught him by a master in a technical school with model instruments[1].

Apprenticeships, their past,

The old apprenticeship system is not exactly suited to modern conditions and it has fallen into disuse; but a substitute for it is wanted. Within the last few years many of the ablest manufacturers have begun to set the fashion of making their sons work through every stage in succession of the business they will ultimately have to control; but this splendid education can be had only by a few. So many and various are the branches of any great modern industry that it would be impossible for the employers to undertake, as they used to do, that every youth committed to their care should learn all; and indeed a lad of ordinary ability would be bewildered by the attempt. But it does not seem impracticable to revive the apprenticeship system in a modified form, with the understanding that the employer binds himself to see that the apprentice is thoroughly taught in the workshop all the subdivisions of one great division of his trade; and that he does not rest content with letting him learn only one of these subdivisions, as too often happens now. The apprentice's training would then often be as broad as if he had been taught the whole of the trade as it existed a few generations ago; and it might be supplemented by a theoretical knowledge of all branches of the trade, acquired in a technical school[2].

and their possible future.

Technical training for the agriculturist.

Something resembling the old apprenticeship system has recently come into vogue for young Englishmen who

[1] A good plan is that of spending the six winter months of several years after leaving school in learning science in College, and the six summer months as articled pupils in large workshops. The present writer introduced this plan several years ago at University College, Bristol, and it has also been adopted in Japan. (See the Report above quoted, Vol. III. p. 140.) But it has practical difficulties which can be overcome only by the cordial and generous co-operation of the heads of large firms with the College authorities. Another excellent plan is that adopted in the school attached to the works of Messrs Mather and Platt at Manchester. "The drawings made in the school are of work actually in progress in the shops. One day the teacher gives the necessary explanations and calculations, and the next day the scholars see, as it were on the anvil, the very thing which has been the subject of his lecture."

[2] An excellent study of apprenticeships in relation to the problems of new countries is contained in the *Report of the New York Bureau of Statistics of Labour* for 1886.

desire to learn the business of farming under the peculiar conditions of a new country; and there are some signs that the plan may be extended to the business of farming in this country, for which it is in many respects admirably adapted. But there remains a great deal of education suitable to the farmer and to the farm labourer which can best be given in agricultural colleges and dairy schools.

The technical education of adults.

§ 5. Meanwhile many great agencies for the technical education of adults are being rapidly developed, such as public exhibitions, trade associations and congresses, and trade journals. Each of them has its own work to do; in agriculture and some other trades the greatest aid to progress is perhaps found in public shows; but those industries which are more advanced and more in the hands of persons of studious habits owe more to the diffusion of practical and scientific knowledge by trade journals, which, aided by changes in the methods of industry and also in its social conditions, are breaking up trade secrets and helping men of small means in competition with their richer rivals. For those who cannot afford to venture on costly experiments themselves may if they will, read the record of every important new departure that is made in their businesses in any part of the world. But of this more hereafter.

Inventions in England and other countries.

The great epoch making inventions in industry came till recently almost exclusively from England. But now other nations are joining in the race. The excellence of the common schools of the Americans, the variety of their lives, with the interchange of ideas between different races among them, and the peculiar conditions of their agriculture have developed a restless spirit of enquiry, while technical education is now being pushed on with great vigour in Massachusetts[1] and elsewhere. On the other hand the diffusion of scientific knowledge among the middle and even the working classes of Germany, combined with their familiarity with modern languages and their habits of travelling in pursuit of instruction[2], has enabled them to

[1] The splendid Massachusetts Institute of Technology is under the direction of the economist, General Walker.

[2] The heads of almost every progressive firm on the Continent have carefully

keep up with English and American mechanics and to take the lead in many of the applications of chemistry to business. But yet the English retain the first position in the alkali industries, the leading idea in the aniline trade was due to an Englishman, and so are the most important chemico-mechanical inventions in the manufactures of steel. Adding to the above the mechanical inventions of Armstrong, Nasmyth and Lister, and the electric work of Cooke, Wheatstone, Thomson and others, it is perhaps not too much to say that more than half of the prominent new industrial departures even of recent times are due to our countrymen[1].

So far as the lower grades of industry are concerned, the chief benefits of a good education are indirect.

§ 6. It is often urged that there are many kinds of work which can be done as efficiently by an uneducated as by an educated workman: and that the higher branches of education are of little direct use except to employers and foremen and a comparatively small number of artisans. It may indeed be granted that some advocates of a great extension of general and technical education have injured their cause by exaggerating the direct and immediate benefits which the ordinary workman would derive from it. It is true that at present only a comparatively small number of the ordinary workmen in the country are called on to go beyond their explicit instructions, and to bring a knowledge of mechanics, of chemistry, or of physics to bear on the tasks which they have in hand. And although this number is steadily and rapidly increasing, in consequence of the growing complexity of the appliances of ordinary life, as well as of agricultural and manufacturing industries; yet it must be admitted that the chief benefits which the ordinary workman derives even now from a good education are indirect. It stimulates his mental activity; it fosters in him a habit of wise inquisitiveness; it makes him more intelligent, more ready, more trustworthy in his ordinary work; it raises the tone of his life in working hours and out of working hours; it is thus

studied processes and machinery in foreign lands. The English are great travellers; but partly perhaps on account of their ignorance of other languages they seem hardly to set enough store on the technical education that can be gained by the wise use of travel. See the Report quoted above, Vol. I. p. 281 and *passim*.

[1] Ib. Vol. I. p. 506.

an important means towards the production of material wealth; at the same time that, regarded as an end in itself, it is inferior to none of those which the production of material wealth can be made to subserve.

But unless good education is brought within reach of the masses, the higher grades of industry will suffer.

But we must look in another direction for a great part, perhaps the greater part, of the immediate economic gain which the nation may derive from an improvement in the general and technical education of the mass of the people. We must look not so much at those who stay in the rank and file of the working classes, as at those who rise from a humble birth to join the higher ranks of skilled artisans, to become foremen or employers, to advance the boundaries of science, or possibly to add to the national wealth in art and literature.

For a large part of the best natural ability in the nation is born in the lower grades; and at present much of this is allowed to run to waste.

The laws which govern the birth of genius are inscrutable. It is probable that the percentage of children of the working classes who are endowed with natural abilities of the highest order is not so great as that of the children of people who have attained or have inherited a higher position in society. But since the manual labour classes are four or five times as numerous as all other classes put together, it is not unlikely that more than half the best natural genius that is born into the country belongs to them; and of this a great part is fruitless for want of opportunity. There is no extravagance more prejudicial to the growth of national wealth than that wasteful negligence which allows genius that happens to be born of lowly parentage to expend itself in lowly work. No change would conduce so much to a rapid increase of material wealth as an improvement in our schools, and especially those of the middle grades, combined with an extensive system of scholarships, which should enable the clever son of a working man to rise gradually from school to school till he had the best theoretical and practical education which the age can give.

Lessons of history.

To the abilities of children of the working classes may be ascribed the greater part of the success of the free towns in the Middle Ages and of Scotland in recent times. Even within England itself there is a lesson of the same

kind to be learnt: progress is most rapid in those parts of the country in which the greatest proportion of the leaders of industry are the sons of working men. For instance the beginning of the manufacturing era found social distinctions more closely marked and more firmly established in the South than in the North of England. In the South something of a spirit of caste has held back the working men and the sons of working men from rising to posts of command; and the old established families have been wanting in that elasticity and freshness of mind which no social advantages can supply, and which comes only from natural gifts. This spirit of caste, and this deficiency of new blood among the leaders of industry, have mutually sustained one another; and there are not a few towns in the South of England whose decadence within living memory can be traced in a great measure to this cause.

Education in art.

§ 6. Education in art stands on a somewhat different footing from education in hard thinking: for while the latter nearly always strengthens the character, the former not unfrequently fails to do this. Nevertheless the development of the artistic faculties of the people is in itself an aim of the very highest importance, and is becoming a chief factor of industrial efficiency.

Tradition and slowly matured experience guide the arts of peoples who do not change quickly their habits of living.

The artisan of Europe in the Middle Ages, and of eastern countries now, has perhaps obtained credit for more originality than he has really possessed. Eastern carpets for instance are full of grand conceptions: but if we examine a great many examples of the art of any one place, selected perhaps from the work of several centuries, we often find very little variety in their fundamental ideas. In fact every designer in a primitive age is governed by precedent: only very daring people depart from it; even they do not depart far, and their innovations are subjected to the test of experience, which, in the long run, is infallible. For though the crudest and most ridiculous fashions in art and in literature will be accepted by the people for a time at the bidding of their social superiors, nothing but true artistic excellence has enabled a ballad or a melody, a style of dress or a pattern of furniture

to retain its popularity among a whole nation for many generations together. Those innovations then which were inconsistent with the true spirit of art were suppressed and those that were on the right track were retained, and became the starting point for further progress. Thus the purity of the industrial arts was preserved in Oriental countries, and to a less extent in mediæval Europe, by traditional instincts. But in the modern era of rapid changes, some caused by the frivolities of fashion and some by the beneficial movements of industrial and social progress, every one feels free to make a new departure, every one has to rely in the main on his own resources: there is no slowly matured public criticism to guide him.

And any artistic genius born among them is likely to be devoted to art.

But this is not the only, perhaps not the chief disadvantage, under which artistic design labours in our own age. There is no good reason for believing that the children of ordinary workmen in the Middle Ages had more power of artistic origination, than those of ordinary village carpenters or blacksmiths of to-day; but if one among ten thousand happened to have genius, it found vent in his work and was stimulated by the competition of the Gilds and in other ways. Whereas the modern artisan is apt to be occupied in the management of machinery; and the faculties which he develops, though they may be more solid and may help more in the long run towards the highest progress of the human race than did the taste and fancy of his mediæval predecessor, yet do not contribute directly towards the progress of art. And if he should find in himself a higher order of ability than among his fellows, he will probably endeavour to take a leading part in the management of a trades-union or some other society, or to collect together a little store of capital and to rise out of that trade in which he was educated. These are not ignoble aims; but his would perhaps have been a nobler ambition, and one more fruitful of good to the world, if he had stayed in his old trade and striven to create works of beauty which should live after he had gone.

But in modern times

It must however be admitted that he would have great difficulties in doing this. The shortness of the time which

we allow ourselves for changes in the arts of decoration, is perhaps scarcely a greater evil than the width of the area over which they are spread; for that causes a further distraction of the hasty and hurried efforts of the designer, by compelling him to be always watching the world movements of the supply of and demand for art products. This is a task for which the artisan, who works with his own hands, is not well fitted; and in consequence, now-a-days the ordinary artisan finds it best to follow and not to lead. Even the supreme skill of the Lyons weaver shows itself now almost exclusively in an inherited power of delicate manipulation, and fine perception of colour, that enable him to carry out perfectly the ideas of professional designers.

design is almost limited to a narrow profession;

The profession of the designer has not yet risen to the best position which it seems capable of holding even under modern conditions; as is shewn by the fact that Paris, which does not hold altogether the first rank in the highest walks of art, is supreme in the skill required for designing. Increasing wealth is enabling people to buy things of all kinds to suit their fancy, with but a secondary regard to their powers of wearing; so that in all kinds of clothing and furniture it is every day more true that it is the pattern which sells the things. And, so great is the hold which French taste has on the average consumer, that many English manufacturers who hold their own against the world would, it is said, be driven out of the market if they had to depend on English patterns. This is however partly due to the fact that Paris having got the lead in fashions, a Parisian design is likely to be in harmony with the coming fashions and to sell better than a design of equal intrinsic worth from elsewhere. French designers find it best to live in Paris: if they stay for long out of contact with the central movements of fashion, they seem to fall behindhand. Most of them have been educated as artists, but have failed of their highest ambition. It is only in exceptional cases, as for instance for the Sèvres China, that those who have succeeded as artists find it worth their while to design. Englishmen can hold their own in designing for Oriental markets. There is also evidence that the English are at least equal to the French

and that profession now is bound to pay court to fashion, especially as regards textile materials.

in originality, though they are inferior in quickness in seeing how to group forms and colours so as to obtain an effective result[1]. Meanwhile in England we are giving more attention to artistic design; there are signs that its rapid improvement during the present generation will be continued during the next; and that it will continue to become purer in tone and stronger in conception.

It is probably true, though opinion is still somewhat divided on the subject, that schools of artistic design are not so urgently needed in England, as a more efficient and cheaper system of popular education in art proper. For in this respect, perhaps more than any other, the child of the English workman has less opportunities than his continental rivals, and especially those of France. If we could secure that all who have a natural turn for it should receive a fairly good education in art proper, the applications of art to design and decoration might perhaps be left pretty much to take care of themselves.

The higher branches of art do not labour under as great disadvantages as the lower. But they are not able to command as large a proportion as formerly of the best genius.

The highest branches of art escape many of the disadvantages under which artistic design labours. He who designs a picture executes it with his own hands; there is not in painting nor even in sculpture that divorce between design and technical familiarity with the material, which is so great an obstacle to the progress of our metal and wood work. But the painters themselves have put on record in the portrait galleries the fact that in mediæval times, and even later, their art attracted a larger share of the best intellect than it does now; when the ambition of youth is tempted by the excitement of modern business, when its zeal for imperishable achievements finds a noble field in the romantic discoveries of modern science; and lastly when a great deal of excellent talent is insensibly diverted from high aims by the ready pay to be got by hastily writing half-thoughts for periodical literature. But even as it is, the total supply of genius of a high order among the ranks of our artists is not small. In some directions there is marked originality, as for instance in landscape painting,

[1] See the *Report on Technical Education*, Vol. I. pp. 256, 261, 324, 325 and Vol. III. pp. 151, 152, 202, 203, 211 and *passim*.

especially in water colours: while the development of wood engraving is a good example of the growth of new industries which educate the higher artistic faculties of artisans.

It is therefore all the more necessary that technical education should offer opportunity to any artistic genius that is born in the lower ranks.

Technical education then cannot add much directly to the supply of genius in art, any more than it can in science or in business: but here also it can save much natural genius from running to waste, and it is called on to do this all the more because the training that was given by the older forms of handicraft can never be revived on a large scale. Thus the artistic education of the lower grades of industry is necessary for its own sake, and because it raises the tone of all branches of manufacture by increasing the demand for art products. But its chief economic value is indirect, and arises from its counteracting the tendency of machinery to narrow the sources of supply of artistic genius.

The improvement of education is a good national investment.

Summing up the chapter, we may conclude that the wisdom of expending public and private funds on education is not to be measured by its direct fruits alone. It will be profitable as a mere investment, to give the masses of the people much greater opportunities than they can generally avail themselves of. For by this many who would have died unknown, get the start that is required for bringing out their latent abilities. And the economic value of one great industrial genius is sufficient to cover the expenses of the education of a whole town. One new idea such as Bessemer's chief invention adds as much to England's productive power as the labour of a hundred thousand men. Less direct, but not less in importance is the aid given to production by medical discoveries such as those of Jenner or Pasteur, which increase our health and working power, and again by scientific work such as that of mathematics or biology, even though many generations may pass away before it bears visible fruit in greater material well-being. All that is spent during many years in opening the means of higher education to the masses would be well paid for if it called out one more Newton or Darwin, Shakspeare or Beethoven.

§ 7. There are few practical problems in which the

economist has a more direct interest than those relating to the principles on which the expense of the education of children should be divided between the State and the parents. But leaving them aside for the present, we must consider the conditions that determine the power and the will of the parents to bear their share of the expense, whatever it may be.

The sacrifices which parents undergo for the education of their children require both unselfishness,

A slave owner or a dog trainer expects himself to reap the full pecuniary value of any education he bestows on his charge; and in a primitive society in which the family is held together by strong and lasting bonds of custom, the father derives nearly as much gain in a direct material form from anything that increases the efficiency of his sons, as from anything that increases his own. But in modern life it is otherwise. Those who bear the expense of a child's education do not as a rule reap, in a direct material form, any considerable part of the benefits which will arise from it. Most parents are willing enough to do for their children what their own parents did for them; and perhaps even to go a little beyond it if they should find themselves among neighbours who happen to have a rather higher standard. But to do more than this requires, in addition to the moral qualities of unselfishness and a warmth of affection that are perhaps not rare, a certain habit of mind which is as yet not very common. It requires the habit of distinctly realizing the future, of regarding a distant event as of nearly the same importance as if it were close at hand, or to use an expressive phrase that is something more than an analogy, of discounting the future at a low rate of interest; this habit is at once a chief product and a chief cause of civilization, and is seldom fully developed except among the middle and upper classes of the more cultivated nations.

and the habit of valuing highly distant advantages.

The future is discounted among the higher grades of industry at a low rate,

But there it is highly developed; the heroic sacrifices which some middle-class parents make for the sake of their children's education are instances of the latent romance of modern life. And as we shall see later on, the income that can be secured by a good education, when it is bestowed on children who have not more than an average share of natural vigour, does not bear a very high ratio to the

expenses incurred in it. In other words the pecuniary advantages of a high class education are discounted at a moderate rate of interest; the supply price of ordinary educated ability in the middle and upper ranks, that is the price that is required to call forth a full supply of it, is calculated at a moderate rate of interest on the expenditure that was incurred for it a long time before.

but at a high rate among the lower grades.

But it is different with the less educated classes. Many of these were made to contribute to the income of their parents at an age much below that up to which the law now compels them to keep their children at school; and their affection, strong though it may be, seldom suggests that they should go far beyond the requirements of the law. Thus in the lower ranks of industry the advantages that are to be got by the child in after years in consequence of the expense incurred by its parents now, are discounted at a high rate of interest: the supply price of educated ability of the lower grades is calculated at a high rate of interest on the expense necessary to obtain it.

In consequence however of the great growth of wealth relatively to population, and of the mental and moral improvement of the age, there is a rapid fall in the rate of interest at which the future benefits to be got by expenditure on education are generally discounted. High as it is for the lower classes, it is not as high as it was; and low as it has been for the upper and middle-classes it is now becoming rapidly lower.

The range of choice open to a father in selecting a trade for his son is chiefly horizontal, though when the lad is once started in life, vertical movement is more likely than horizontal.

But these obstacles to movement of labour from any one grade to other grades above it, do not hinder movement between two occupations in one grade: they hinder vertical movement, but not horizontal. For indeed the industrial classes may be regarded as so many horizontal strata. All the occupations in any one stratum require on the part of those of ordinary ability about an equally expensive education and equally difficult preparation; so that in the absence of special circumstances the supply price for them all is equal. It is indeed true that when a person has once chosen his occupation he is more likely to move vertically than horizontally; he is more likely to rise to a higher grade

in his own line of business than to pass to another line of business in his own grade. But most people stay in that grade in which they are placed by their parents, and that is generally the grade in which the parents themselves are.

Mill thought that the industrial classes were divided into four well marked grades.

§ 8. Mill was so much impressed by the difficulties that beset a parent in the attempt to bring up his son to an occupation widely different in character from his own, that he said[1]:—"So complete, indeed, has hitherto been the separation, so strongly marked the line of demarcation, between the different grades of labourers, as to be almost equivalent to an hereditary distinction of caste; each employment being chiefly recruited from the children of those already employed in it, or in employments of the same rank with it in social estimation, or from the children of persons who, if originally of a lower rank, have succeeded in raising themselves by their exertions. The liberal professions are mostly supplied by the sons of either the professional or the idle classes: the more highly skilled manual employments are filled up from the sons of skilled artisans or the class of tradesmen who rank with them: the lower classes of skilled employments are in a similar case; and unskilled labourers, with occasional exceptions, remain from father to son in their pristine condition. Consequently the wages of each class have hitherto been regulated by the increase of its own population, rather than that of the general population of the country." But he goes on, "The changes, however, now so rapidly taking place in usages and ideas, are undermining all these distinctions."

But all such sharp lines of division between industrial grades are tending to fade away.

His prescience has been vindicated by the progress of change since he wrote. The broad lines of division which he pointed out have been almost obliterated by the rapid action of those causes which, as we saw earlier in the chapter, are reducing the amount of skill and ability required in some occupations and increasing it in others. We cannot any longer regard different occupations as distributed among four great planes; but we may perhaps think of them as resembling a long flight of steps of unequal breadth, some

[1] Book II. ch. XIV. § 2.

of them being so broad as to act as landing stages[1]. Or even better still we might picture to ourselves two flights of stairs one representing the "hard-handed industries" and the other "the soft-handed industries;" because the vertical division between these two is in fact as broad and as clearly marked as the horizontal division between any two grades.

But we must defer to a later stage a fuller discussion of the obstacles which the conditions of any place and time oppose to the free mobility of labour, and also of the inducements which they offer to any one to change his occupation or to bring up his son to an occupation different from his own. These inducements we have spoken of as the price offered to labour; but it is obvious that they are not to be measured exclusively by those direct money payments to which alone the name of wages is generally given. Every occupation involves other disadvantages besides the fatigue of the work required in it, and every occupation offers other advantages besides the receipt of money wages. The true reward which it offers to labour has to be calculated by deducting the money value of all its disadvantages from that of all its advantages. It will be convenient to introduce here for immediate use a term, the full significance of which will be explained later on, and to describe this true reward which an occupation offers to labour as its NET ADVANTAGES.

Summary of the three chapters on the Supply of Labour

§ 9. We may now sum up the results of this and the preceding two chapters. A temperate climate keeps the length of a generation fairly long, and generally prevents both birth-rate and death-rate from being very high. It is favourable to vigour and the power of sustained exertion; but it causes a great part of the energies of the people to be spent in providing the necessaries of life; and thus

[1] Thus Mill's classification had lost a great part of its value when Cairnes adopted it (*Leading Principles*, p. 72). A classification more suited to our existing conditions is offered by Mr Giddings (*Political Science Quarterly*, Vol. II. pp. 69—71). It is open to the objection that it draws broad lines of division where Nature has made no broad lines; but it is perhaps as good as any division of industry into four grades can be. His divisions are (i) *automatic manual labour*, including common labourers and machine tenders; (ii) *responsible manual labour* including those who can be entrusted with some responsibility and labour of self-direction; (iii) *automatic brain workers* such as bookkeepers and (iv) *responsible brain workers*, including the superintendents and directors.

seldom allows much intellectual achievement till after a good deal of material progress has been made.

The habits of the people both as to their marriage and in their marriage, affect birth-rate directly and death-rate indirectly. The chief causes by which these habits are influenced are climate, religious and social sanctions, the excess of their own incomes over what their habits and "standard of comfort" lead them to regard as needful for their subsistence and their expectation of being able to start their children in life easily. Children are hardly any burden when they can add at an early age to the family income, whether in money as in a factory town, or in kind as on the farms of a new country. But when the mode of living is such that parents have to furnish their children with a capital large in proportion to their own means, then every additional child involves a great strain on the resources of the family. Among peasant proprietors this cause combined with the preference which is given to heiresses tends to keep the families generally small. On the other hand the vigour that works its way up into the middle classes in England, assists the prevailing social habits of the class in preventing the families from being very small in spite of the fact that their marriage age is kept late by the great expense of educating a family. The social sanctions, and in some cases the religious sanctions which affect the age of marriage are in a great measure the abstract of the experience of the people as to their power of supporting increased numbers; and these sanctions often out-last the conditions in which they had their origin. But on the whole the average size of families in any place or rank of life is very much under the influence of economic causes, and dependent on the incomes of the people present and prospective. This dependence is however complex, and changes its character with circumstances: a rise in the incomes of any class cannot be relied on to cause an increase in the average size of their families; indeed it may have the opposite effect if it leads them to adopt more artificial modes of living.

But an increase of incomes always acts directly in diminishing the death-rate and increasing the vigour and

efficiency of the present and the rising generation. It is true that the increased income may be obtained at the expense of moving into towns and adopting sedentary pursuits; and the want of fresh air and light and joyous play may injure health and vigour. But, other things being equal, an increase of income, except in the case of those who are already rich, increases the bodily and mental strength of those who earn it, and of their children: it lowers the death-rate, it lengthens life, it shortens the time of sickness, and thus it increases the number of people at work, the time during which they are in full work and their efficiency when at work. It is no exception to this rule that when a nominal increase of income is got by a mother's going out to work to the neglect of her children and of her household affairs, the result is to injure their health and vigour; for in substituting less important gains for more important she has really diminished the income of the family.

Again it must always be remembered that the growth of material wealth, the increase of the demand price for labour of all grades, is only one of many causes that affect the supply of labour as regards both numbers and vigour; for its action is modified by changes in knowledge, in the habits of married life, and in the modes of expenditure. Better housekeeping, greater temperance in the use of alcohol and other luxuries, and less desire for social display would enable parents to do better for their families with their present incomes; and again, the labour-supporting power of a given national income would be very much increased by its more even distribution, if this were effected by causes that did not impair security and discourage energy and thrift. In every way the moral and mental strength of the rising generation depends on the character of the mothers of that generation; it is raised by everything that enables women to develop their highest intellectual faculties truly and womanfully. But since moral and mental strength rest in a great measure on a physical basis of nervous strength, it is a scarcely less important condition that the children should be well nurtured; and this requires that the mother should be a skilled housewife and nurse, and that

the material resources of the household should not be insufficient.

Summary.

The decadence of the old apprenticeship system, the growing rapidity of industrial and social change, the increasing use of machinery, and the ever widening range of science and the arts of production, all these causes combine to increase the urgency of improvement in our systems of education both general and technical. This is all the more important because the social and industrial changes of our time are blocking up some of the old paths by which lads of great natural ability might rise to distinction in spite of the poverty of their parents. The poverty of parents is a great obstacle to their giving their children a start in life very different from their own: for independently of the material difficulties in their way, the narrowness of their lives makes it difficult for them to realize vividly the distant future, and to go out of their way to make provision for it.

Speaking generally the rate of interest at which parents discount future benefits for their children is governed by their affection and unselfishness; but this being given it falls with every increase of their material means and of their general enlightenment. Parents generally bring up their children to occupations in their own grade, and therefore the total supply of labour in any grade in one generation is in a great measure determined by the numbers in that grade in the preceding generation. But within the grade itself there is greater mobility; and if the net advantages of any one occupation in it rise above the average, there is a quick influx of youth from other occupations into the grade. The vertical movement from one grade to another is seldom very rapid or on a very large scale; but, when the net advantages of a grade have risen relatively to the difficulty of the work required of it, many small streams of labour both youthful and adult will begin to flow towards it; and though none of them may be very large, they will together have a sufficient volume to satisfy before long the increased demand for labour in that grade.

In short, other things being equal, an increase in the

earnings that are to be got by labour, increases its rate of growth; or, in other words, a rise in its demand price increases the supply of it. If the state of knowledge, and of social and domestic habits be given, then the numbers and vigour of the people as a whole, and the numbers of any trade in particular may be said to have a supply price in this sense, that there is a certain level of the demand price which will keep them stationary; that a higher price would cause them to increase, and that a lower price would cause them to decrease.

CHAPTER VII.

THE GROWTH OF WEALTH.

Forms of wealth among barbarous peoples.

§ 1. THE earliest forms of wealth were probably implements for hunting and fishing, and personal ornaments; and in cold countries clothing, and huts[1]. During this stage the domestication of animals began; but at first they were probably cared for chiefly for their own sake, because they were beautiful, and it was pleasant to have them; they were, like articles of personal ornament, desired because of the immediate gratification to be derived from their possession rather than as a provision against future needs[2]. Gradually the herds of domesticated animals increased; and during the pastoral stage they were at once the pleasure and the pride of their possessors, the outward emblems of social rank, and by far the most important store of wealth accumulated as a provision against future needs.

Forms of wealth in early stages of civilization.

As numbers thickened and the people settled down to agriculture, cultivated land took the first place in the inventory of wealth; and that part of the value of the land which was due to improvements (among which wells held a conspicuous place) became the chief element of capital, in the narrower sense of the term. Next in importance came houses,

[1] A short but suggestive study of the growth of wealth in its early forms, and of the arts of life is given in Tylor's *Anthropology*.

[2] Bagehot (*Economic Studies*, pp. 163—5) after quoting the evidence which Mr Galton has collected on the keeping of pet animals by savage tribes, points out that we find here a good illustration of the fact that however careless a savage race may be for the future, it cannot avoid making some provision for it. A bow, a fishing net, which will do its work well in getting food for to-day, must be of service for many days to come: a horse, or a canoe that will carry one well to-day, must be a stored up source of many future enjoyments. The least provident of barbaric despots may raise a massive pile of buildings, because it is the most palpable proof of his present wealth and power.

domesticated animals, and in some places boats and ships; but the implements of production whether for use in agriculture or in domestic manufactures remained for a long time of little value. In some places however precious stones and the precious metals in various forms became early a leading object of desire and a recognized means of hoarding wealth; while, to say nothing of the palaces of monarchs, a large part of social wealth in many comparatively rude civilizations took the form of edifices for public purposes, chiefly religious, and of roads and bridges, of canals and irrigation works. For many thousands of years these remained the chief forms of accumulated wealth. In towns indeed houses and household furniture took the first place, and stocks of the more expensive of raw materials counted for a good deal; but though the inhabitants of the towns had often more wealth per head than those of the country, their total numbers were small; and their aggregate wealth was very much less than that of the country. During all this time the only trade that used very expensive implements was the trade of carrying goods by water: the weavers' looms, the husbandman's ploughs, and the blacksmith's anvils were of simple construction and were of little account beside the merchant's ships. But in the eighteenth century England inaugurated the era of expensive implements.

Until recently there was little use of expensive forms of auxiliary capital.

The implements of the English farmer had been rising slowly in value for a long time; but the progress was quickened in the eighteenth century. After a while the use first of water power and then of steam power caused the rapid substitution of expensive machinery for inexpensive hand tools in one department of production after another. As in earlier times the most expensive implements were ships and in some cases canals for navigation and irrigation, so now they are the means of locomotion in general;—railways and tramways, canals, docks and ships, telegraph and telephone systems, and water works: even gas works might almost come under this head, on the ground that a great part of their plant is devoted to distributing the gas. After these come mines and iron and chemical works, ship-building yards, printing presses, and other large factories full of expensive machinery.

But in recent years they have increased very fast.

On whichever side we look, we find that the progress and diffusion of knowledge are constantly leading to the adoption of new processes and new machinery which economize human effort on condition that some of the effort is spent a good while before the attainment of the ultimate ends to which it is directed. It is not easy to measure this progress exactly, because many modern industries had no counterpart in ancient times. But let us compare the past and present conditions of the four great industries the products of which have not changed their general character: viz. agriculture, the building, the cloth making, and the carrying trades. In the first two of these hand work still retains an important place: but even in them there is a great developement of expensive machinery. Compare for instance the rude implements of an Indian Ryot even of to-day with the equipment of a progressive Lowland farmer[1]; and consider the brick-making, mortar making, sawing, planing, moulding and slotting machines of a modern builder, his steam cranes and his electric light. And if we turn to the textile trades, or at least to those of them which make the simpler products, we find each operative in early times content with implements the cost of which was equivalent to but a few months of his labour; while in modern times it is estimated that for each man, woman and child employed there is a capital in plant alone of about £200, or say the equivalent of 5 years' labour. Again the cost of a steam ship is perhaps equivalent to the labour for ten years or more of those who work her; while a

[1] The farm implements for a first class Ryot family, including six or seven adult males are a few light ploughs and hoes chiefly of wood, of the total value of about 13 rupees (Sir G. Phear, *Aryan Village*, p. 233) or the equivalent of their work for about a month; while the value of the machinery alone on a well equipped large modern arable farm amounts to £3 an acre, (*Equipment of the Farm*, edited by J. C. Morton) or say a year's work for each person employed. They include steam engines, trench, subsoil and ordinary ploughs, some to be worked by steam and some by horse power; various grubbers, harrows, rollers, clod crushers, seed and manure drills, horse hoes, rakes, hay making, mowing and reaping machines, steam or horse threshing, chaff cutting, turnip cutting, hay pressing machines and a multitude of others. Meanwhile there is an increasing use of silos and covered yards, and constant improvements in the fittings of the dairy and other farm buildings, all of which give great economy of effort in the long run, but require a larger share of it to be spent in preparing the way for the direct work of the farmer in raising agricultural produce.

capital of £700,000,000 invested in Railways in England and Wales is (even after deducting the cost of the land and the artificial legal and parliamentary expenses which have been heaped on them) equivalent to the work for more than thirty years of the 140,000 people employed on them.

And they are likely to continue to increase.

As civilization has progressed, man has always been developing new wants, and new and more expensive ways of gratifying them. The rate of progress has sometimes been slow and occasionally there has even been a great retrograde movement; but now we are moving on at a rapid pace that grows quicker every year; and we cannot guess where it will stop. On every side further openings are sure to offer themselves, all of which will tend to change the character of our social and industrial life, and to enable us to turn to account vast stores of capital in providing new gratifications and new ways of economizing effort by expending it in anticipation of distant wants. There seems to be no good reason for believing that we are any where near a stationary state in which there will be no new important wants to be satisfied; in which there will be no more room for profitably investing present effort in providing for the future, and in which the accumulation of wealth will cease to have any reward. The whole history of man shows that his wants expand with the growth of his wealth and knowledge[1].

[1] For instance improvements which have recently been made in some American cities indicate that by a sufficient outlay of capital each house could be supplied with what it does require, and relieved of what it does not, much more effectively than now, so as to enable a large part of the population to live in towns and yet be free from many of the present evils of town life. The first step is to make under all the streets large tunnels, in which many pipes and wires can be laid side by side, and repaired, when they get out of order, without any interruption of the general traffic and without great expense. Motive power and possibly even heat might then be generated at great distances from the towns, (in some cases at the bottom of coal mines,) and laid on wherever wanted. Soft water and spring water and perhaps even sea water might be laid on in separate pipes to nearly every house; while steam pipes might be used for giving warmth in winter and compressed air for lowering the heat of summer; or the heat might be supplied by gas of great heating power laid on in special pipes, while light was derived from gas specially suited for the purpose, or from electricity; and every house might be in electric communication with the rest of the town. All unwholesome vapours, including those given off by any domestic fires which were still used, might be carried away by strong draughts through long conduits, to be purified by passing through large furnaces and thence away through huge chimneys into the higher air. To carry out such a scheme in the towns of

And meanwhile there has been and probably will be a parallel increase in the power to accumulate.

And with the growth of openings for the investment of capital there is a constant increase in that surplus of production over the necessaries of life, which gives the power to save. When the arts of production were rude, there was very little surplus, except where a strong ruling race kept the subject masses hard at work on the bare necessaries of life, and in a climate in which those necessaries were small and easily obtained. But every increase in the arts of production, and in the capital accumulated to assist and support labour in future production increased the surplus out of which more wealth could be accumulated. After a time, as we have seen[1], civilization became possible in temperate and even in cold climates; the increase of material wealth was possible under conditions which did not enervate the worker, and did not therefore destroy the foundations on which it rested. Thus from step to step wealth and knowledge have grown, and with every step the power of saving wealth and extending knowledge has increased.

The weighing of future benefits against present was the chief motive of the accumulation of wealth even before the dawn of the modern money economy.

§ 2. Thus we see that till recently land was the only very important kind of wealth from which its owner looked to derive a revenue. He laboured hard to make things, or he stinted his consumption in the present in order to save things, or he engaged in public or private war to appropriate things, which it would be pleasant for him to have, and which would afford him immediate gratification; but the whole auxiliary capital in the world was small if we except the land; and was very small if in addition we except the live stock on it. If a person were in doubt whether he would give up a present pleasure or undergo an extra fatigue in order that he might get a better house, or better clothes, or richer ornaments, he had to weigh in the balance the pleasures of the present against those of the future; and human nature being what it is, he probably seldom preferred the future pleasures to the present unless he expected them to be much

England would require the outlay of a much larger capital than has been absorbed by our railways. This conjecture as to the ultimate course of town improvement may be wide of the truth; but it serves to indicate one of very many ways in which the experience of the past foreshadows broad openings for investing present effort in providing the means of satisfying our wants in the future.

[1] Bk. I. Ch. II.

greater. But that is all we can say: there was generally no exact money measure of what he gave up on the one hand, and what he obtained in exchange for it on the other. Gradually the habit of making commodities for sale increased, and the amount of auxiliary capital used in production increased too; and with this double change people got into the way of making their calculations as to the gains of saving in an arithmetical form. When a prince wanted to forestall some of his future revenues he borrowed perhaps a thousand ounces of silver and undertook to pay back fifteen hundred at the end of a year: there was however no perfect security that he would fulfil the promise; and perhaps the lender would have been willing to exchange that promise for an absolute certainty of receiving thirteen hundred at the end of the year. In that case the nominal rate of interest would be fifty per cent., and the real rate thirty. This habit once started, the same sort of calculation would be made if the loan were arranged in terms of miscellaneous goods; those lent and those returned would be reduced to a common measure in terms of silver, and the rate of interest calculated out.

But the growth of trade and the increasing use of money led to the habit of measuring the usance of wealth, in whatever form it might be, by the interest that could be got for the loan of money.

This change in the form of the income derived from wealth has been accompanied by the development of an organized market for the loan of capital, or as it is commonly called the Money-market. The funds available for loan at any one time are rapidly increasing with the growth of wealth and the prevalence of subtler forms of business organization. But they are even yet small in comparison with the value of land, buildings, and other old-fashioned forms of wealth.

The growth of modern methods of dealing in loans.

§ 3. That sacrifice of present pleasure for the sake of future, which is the chief cause of the accumulation of wealth, has been called *abstinence* by economists. But this term has been misunderstood: for the greatest accumulators of wealth are very rich persons some of whom live in luxury, and certainly do not practise abstinence in that sense of the term in which it is convertible with abstemiousness. What economists meant was that when a person abstained from consuming anything which he had the power of consuming, with the

The postponement of gratification which is generally involved in the accumulation of wealth, has been called abstinence

purpose of increasing his resources in the future, his abstinence from that particular act of consumption increased the accumulation of wealth. Since, however, the term is liable to be misunderstood, we may with advantage avoid its use, and say that the accumulation of wealth is generally the result of a postponement of enjoyment, or of a *waiting* for it[1].

but perhaps it is better described simply as waiting.

It matters not for our immediate purpose whether the power over the enjoyment for which the person waits, was earned by him directly by labour, which is the original source of nearly all enjoyment; or was acquired by him from others, by exchange or by inheritance, by legitimate trade or by unscrupulous forms of speculation, by spoliation or by fraud: the only points with which we are just now concerned are that the growth of wealth involves in general a deliberate waiting for a pleasure which a person has (rightly or wrongly) the power of commanding in the immediate present, and that his willingness so to wait depends on his habit of vividly realizing the future and providing for it.

The slow and fitful development of the habit of providing for the future.

This habit of distinctly realizing the future and providing for it has developed itself slowly and fitfully in the course of man's history. Travellers tell us of tribes who might double their resources and enjoyments without increasing their total labour, if they would only apply a little in advance the means that lie within their power and their knowledge; as for instance by fencing in their little plots of vegetables against the intrusion of wild animals.

But even this apathy is perhaps less strange than the wastefulness that is found now among some classes in our own country. Cases are not rare of men who alternate between earning many pounds a week and being reduced to the verge of starvation: the utility of a shilling to them when they are in employment is less than that of a penny

[1] Karl Marx and his followers have found much amusement in contemplating the accumulations of wealth which result from the abstinence of Baron Rothschild, which they contrast with the extravagance of a labourer who feeds a family of seven on seven shillings a week, and living up to his full income, practises no economic abstinence at all. That part of accumulated wealth which consists of interest on previous accumulations stands indeed on a somewhat different footing from the rest. But the points which are special to it will be best considered when we come to discuss the part which interest plays in the Distribution of wealth.

when they are out of it, and yet they never attempt to make provision for the time of need. At the opposite extreme there are misers, in some of whom the passion for saving borders on insanity; while even among peasant proprietors and some other classes, we meet not unfrequently with people who carry thrift so far as to stint themselves of necessaries, and to impair their power of future work. Thus they lose every way: they never really enjoy life; while the income which their stored up wealth brings them, is less than they would have got from the increase of their earning power, if they had invested in themselves the wealth that they have accumulated in a material form.

In India and to a less extent in Ireland we find people who do indeed abstain from immediate enjoyment and save up considerable sums with great self-sacrifice; but spend all their savings in lavish festivities at funerals and marriages. They make intermittent provision for the near future, but scarcely any permanent provision for the distant future: the great engineering works by which their productive resources have been so much increased, have been made chiefly with the capital of the much less self-denying race of Englishmen.

Thus the causes which control the accumulation of wealth differ widely in different countries and different ages. They are not quite the same among any two races, and perhaps not even among any two social classes in the same race. They depend much on social and religious sanctions; and it is remarkable how, when the binding force of custom has been in any degree loosened, differences of personal character will cause neighbours brought up under like conditions to differ from one another more widely and more frequently in their habits of extravagance or thrift than in almost any other respect.

Security as a condition of saving.

§ 4. The thriftlessness of early times was in a great measure due to the want of security that those who made provision for the future would enjoy it: only those who were already wealthy were strong enough to hold what they had saved; the laborious and self-denying peasant who had heaped up a little store of wealth only to see it taken from him by a stronger hand, was a constant warning to

his neighbours to enjoy their pleasure and their rest when they could. The border country between England and Scotland made little progress so long as it was liable to incessant forays; there was very little saving by the French peasants in the last century when they could escape the plunder of the tax-gatherer only by appearing to be poor, or by those Irish cottiers even a generation ago who were compelled on many estates to follow the same course in order to avoid the landlords' claims of exorbitant rents.

Insecurity of this kind has nearly passed away from the civilized world. But we are still suffering in England from the effects of the poor-law which ruled at the beginning of the century, and which introduced a new form of insecurity for the working classes. For it arranged that part of their wages should, in effect, be given in the form of poor relief; and that this should be distributed among them in inverse proportion to their industry and thrift and forethought. Thus they found that to make provision for the future was a blunder: and the traditions and instincts which were fostered by that evil experience are even now a great hindrance to the progress of the working classes.

Insecurity of this kind also is being diminished: the growth of enlightened views as to the duties of the State and of private persons towards the poor, is tending to make it every day more true that those who have helped themselves and endeavoured to provide for their own future, will be cared for by society better than the idle and the thoughtless. But the progress in this direction remains slow, and there remains much to be done yet.

The growth of a money economy gives new temptations to extravagance.

§ 5. The growth of a money-economy and of modern habits of business does indeed hinder the accumulation of wealth by putting new temptations in the way of those who are inclined to live extravagantly. In old times if a man wanted a good house to live in, he must build it himself; now he finds plenty of good houses to be hired at a rent. Formerly if he wanted good beer he must have a good brew-house, now he can buy it more cheaply and better than he could brew it. Now he can borrow books from a library instead of buying them; and he can even furnish his

house before he is ready to pay for his furniture. Thus in many ways the modern systems of buying and selling, and of lending and borrowing, and the growth of new wants, lead to new extravagances, and to a subordination of the interests of the future to those of the present. But on the other hand modern methods of business have brought with them increased opportunities for the safe investment of capital in such ways as to yield a revenue to persons who have no good opportunity of engaging in any business,—not even in that of agriculture, where the land will under some conditions act as a trustworthy savings bank. These new opportunities have induced some people who would not otherwise have attempted it, to put by something for their own old age. And, what has had an incomparably greater effect on the growth of wealth, it has rendered it far easier for a man to provide a secure income for his wife and children after his death: for, after all, family affection is the main motive of saving.

But it has enabled people who have no faculty for business to reap the full fruits of saving.

§ 6. There are indeed some who find an intense pleasure in seeing their hoards of wealth grow up under their hands, with scarcely any thought for the happiness that may be got from its use by themselves or by others. They are prompted partly by the instincts of the chase, by the desire to outstrip their rivals; by the ambition to have shown ability in getting the wealth, and to acquire power and social position by its possession. And sometimes the force of habit, started when they were really in need of money, has given them, by a sort of reflex action, an artificial and unreasoning pleasure in amassing wealth for its own sake. But were it not for the family affections, many who now work hard and save carefully, would not exert themselves to do more than secure a comfortable annuity for their own lives; either by purchase from an insurance company, or by arranging to spend every year after they had retired from work, part of their capital as well as all their income. In the one case they would leave nothing behind them: in the other only provision for that part of their hoped for old age from which they had been cut off by death. That men labour and save chiefly for the sake of their families and not for themselves,

A few people save for their own sakes:

but the chief motive of saving is family affection.

is shown by the fact that they seldom spend, after they have retired from work, more than the income that comes in from their savings, preferring to leave their stored up wealth intact for their families; while in this country alone twenty millions a year are saved in the form of insurance policies and are available only after the death of those who save them.

A man can have no stronger stimulus to energy and enterprise than the hope of rising in life, and leaving his family to start from a higher round of the social ladder than that on which he began. It may even give him an overmastering passion which reduces to insignificance the desire for ease, and for all ordinary pleasures, and sometimes even destroys in him all the finer sensibilities and all noble aspirations. But as is shown by the marvellous growth of wealth in America during the present generation, it makes him a mighty producer and accumulator of riches; unless indeed he is in too great a hurry to grasp the social position which his wealth will give him; for his ambition may then lead him into as great extravagance as could have been induced by an improvident and self-indulgent temperament.

The greatest savings are made by those who have been brought up on narrow means to stern hard work, who have retained their simple habits, in spite of success in business, and who nourish a contempt for showy expenditure and a desire to be found at their death richer than they had been thought to be. This type of character is frequent in the quieter parts of old but vigorous countries, and it was very common among the middle classes in the rural districts of England for more than a generation after the pressure of the great French war and the heavy taxes that lingered in its wake.

The source of accumulation is surplus income, of which a chief form is the income derived from capital.

§ 7. Next as to the sources of accumulation. The power to save depends on an excess of income over necessary expenditure; and this is greatest among the wealthy. With the present distribution of wealth, most of the larger incomes, in this country, but only a few of the smaller, are chiefly derived from capital. Moreover, as it happened, the commercial classes in England, early in the present century, had much more saving habits than either the country gentlemen or the working classes. All these causes

combined to make English economists of the last generation regard savings as made almost exclusively from the profits of capital.

But rent and the earnings of professional men, and of hired workers, are equally important, at all events if account be taken of Personal capital.

But even in modern England rent and the earnings of professional men and hired workers are an important source of accumulation: and they have been the chief source of it in all the earlier stages of civilization[1]. Moreover the middle and especially the professional classes have always denied themselves much in order to invest capital in the education of their children; while a great part of the wages of the working classes is invested in the physical health and strength of their children. The older economists took too little account of the fact that human faculties are as important a means of production as any other kind of capital; and we may conclude, in opposition to them, that any change in the distribution of wealth which gives more to the wage receivers and less to the capitalists is likely, other things being equal, to hasten the increase of material production, and that it will not perceptibly retard the storing up of material wealth. Of course other things would not be equal if the change were brought about by violent methods which gave a shock to public security; but a slight and temporary check to the accumulation of material wealth need not necessarily be an evil, even from a purely economic point of view. If without violently disturbing existing arrangements, it provided better opportunities for the great mass of the people; and if it increased their efficiency and developed in them such habits of self-respect as to result in the growth of a much more efficient race of producers in the next generation; then it might do more in the long run to promote the growth of even material wealth than great additions to our stock of factories and steam engines.

The public accumulations of democracies.

A people among whom wealth is well distributed, and who have high ambitions, are likely to accumulate a great deal of public property. And the savings made in this form alone by some well-to-do democracies form no inconsiderable part of the best possessions which our own age has inherited from its predecessors. The growth of the co-operative

[1] Comp. *Principles of Political Economy*, by Richard Jones.

Co-operation.

movement in all its many forms, of building societies, friendly societies, trades unions, of working men's savings banks &c., shows that, even so far as the immediate accumulation of material wealth goes, the resources of the country are not, as the older economists assumed, entirely lost when they are spent in paying wages.

The influence of a fall in the rate of interest on accumulation is not so injurious as was supposed by the earlier economists.

§ 8. There is another point on which the doctrines of the older economists were expressed with too much sharpness. Founding themselves on the just observation that a fall in the rate of interest (or, as they said, of profits) is often an indication of diminishing prosperity[1], and that it always diminishes the reward of saving, they went over-hastily to the conclusion that a considerable fall in that rate would diminish the reward of saving so much that scarcely any one would care to save: they were sure that a high rate of interest (or profits) was essential to a rapid accumulation. This conclusion has not been completely borne out by subsequent experience; and it seems to be founded on a faulty analysis.

It is no doubt true that when a future pleasure (or relief from pain) is preferred to a present, the reason is that the latter is expected to be greater. But this result may be brought about in either of two ways; it may be due to the expectation of an increase in the material source of the pleasure (such as is represented by a high rate of interest); or it may be due simply to the expectation that the need at the later time will be more urgent than at the present. When a person puts away eggs for the winter he does not expect that they will be better flavoured then than now; he expects that they will be scarce, and that therefore their utility will be higher than now. Again, when our forefathers accumulated stores of guineas which they carried into the country, when they retired from active life, they did not expect the guineas to grow in the chest in which they were kept; but they reckoned that the extra gratification which they could get while the guineas were coming in fast by spending a few more of them, would be of less service to them than the comfort which those guineas

[1] How untrustworthy an indication it is we shall see later on.

would buy for them in their old age. The care of the guineas cost a great deal of trouble; and no doubt they would have been willing to pay some small charge to any one who would have relieved them from the trouble without occasioning them any sort of risk.

In exceptional cases a fall in the rate of interest increases accumulation.

Nor is it even true that an increase in the future pleasure which can be secured by a given present sacrifice will always increase the amount of present sacrifice which people will make[1]. As Mr Sargant has pointed out, if a man has decided to go on working and saving till he has provided a certain income for his old age, or for his family after his death, he will find that he has to save more if the rate of interest is low than if it is high. Suppose, for instance, that he wishes to provide an income of £400 a year on which he may retire from business, or to insure £400 a year for his wife and children after his death. If the current rate of interest is 5 per cent., he need only put by £8,000, or insure his life for £8,000; but if it is 4 per cent., he must save £10,000, or insure his life for £10,000.

Sir Josiah Child said two centuries ago, "we see that generally all merchants" in countries in which the rate of interest is high "when they have gotten great wealth, leave trading" and lend out their money at interest, "the gain thereof being so easy, certain and great; whereas in other countries where interest is at a lower rate, they continue merchants from generation to generation, and enrich themselves and the state." It is as true now, as it was then, that many men retire from business when they are yet almost in the prime of life, and when their knowledge of men and things might enable them to conduct their business more efficiently than ever. Thus a fall in the rate

[1] This result is not dependent on the existence of a money economy. Suppose for instance that villagers have to get timber for their cottages from the woods: the more distant these are, the smaller will be the return of future comfort got by each day's work in fetching the wood, the less will be the future usance of the wealth accumulated by each day's work: and this will no doubt tend to prevent them from increasing the size of their cottages. But if custom has made them familiar with cottages of only one fashion, the further they are from the woods, and the smaller the usance to be got from the produce of one day's work, the more days' work will they give.

of interest would in some ways promote and not check the production and the accumulation of wealth.

Although then a fall in the distant benefits to be got by a given amount of working and waiting for the future does in general tend to diminish the provision which people make for the future; or in more modern phrase, though a fall in the rate of interest does in general tend to check the accumulation of wealth, yet the tendency is not so strong as at first sight appears; and it is quite possible that a continued fall in the rate of interest may be accompanied by a continued increase in the yearly additions to the world's capital[1].

Conclusion of the argument.

§ 9. On the whole then the accumulation of capital is governed by a great variety of causes: by custom, by habits of self-control and forecasting and realizing the future, and above all by the power of family affection. Security is a necessary condition for it, and the progress of knowledge and intelligence furthers it in many ways.

The "demand price" of accumulation, that is the future pleasure which his surroundings enable a person to obtain by working and waiting for the future, takes many forms: but the substance is always the same. The extra pleasure

[1] The statistical history of the growth of wealth is singularly poor and misleading. This is partly due to difficulties inherent in any attempt to give a numerical measure of wealth which shall be applicable to different places and times, partly to the absence of systematic attempts to collect the necessary facts. The Government of the United States does indeed ask for returns of every person's property; and though the results thus obtained are not very satisfactory (see in particular, General Walker's remarks on *The Statistics of Capital invested in manufactures* in the Report of the Tenth Census, Vol. II.), yet they are probably on the whole the best we have. They indicate that the wealth per head rose from 187 dollars in 1790 to 220 dollars in 1840, and 870 dollars in 1880. Of this last sum about a quarter is set down to the value of agricultural land, about one half to real property of other kinds and fixed capital, while of the remaining quarter about one half is put to the account of household furniture, &c. Relying chiefly on the history of the death duties, M. de Flaix recently estimated that the wealth per head in France had increased about fourfold during the last hundred years. Mr Giffen in a memorable paper on the growth of capital calculated, chiefly on the basis of income tax returns, that the wealth of the United Kingdom rose from £6,013,000,000 in 1865 to £8,548,000,000 in 1875, but much of this rise was merely nominal and due to estimates of profits which were not justified by subsequent events. An instructive history of changes in the relative wealth of different parts of England has been deduced by Prof. Rogers from the assessment of the several counties for the purposes of taxation.

which a peasant who has built a weather-proof hut derives from its usance while the snow is drifting into those of his neighbours who have spent less labour on building theirs, is the price earned by his working and waiting: and is similar in all fundamental respects to the interest which the retired physician derives from the capital he has lent to a factory or a mine to enable it to improve its machinery. And on account of the numerical definiteness of the form in which it is expressed, we may take this interest to be the type of and to represent the usance of wealth in other forms.

A rise then in the rate of interest, or demand price, for saving tends to increase the volume of saving. In spite of the fact that a few people who have determined to secure an income of a certain fixed amount for themselves or their family will save less with a high rate of interest than with a low rate, it is a nearly universal rule that a rise in the rate increases the *desire* to save; and it often increases the *power* to save, or rather it is often an indication of an increased efficiency of our productive resources: but the older economists went too far in suggesting that a rise of interest (or of profits) at the expense of wages always increased the power of saving: they forgot that from the national point of view the investment of wealth in the child of the working man is as productive as its investment in horses or machinery.

It must however be recollected that the annual investment of wealth is a small part of the already existing stock and that therefore the stock would not be increased perceptibly in any one year by even a considerable increase in the annual rate of saving.

CHAPTER VIII.

INDUSTRIAL ORGANIZATION.

The doctrine that organization increases efficiency is old: but Adam Smith gave it new life,

§ 1. WRITERS on social science from the time of Plato downwards have delighted to dwell on the increased efficiency which labour derives from organization. But in this, as in other cases, Adam Smith gave a new and larger significance to an old doctrine, by the philosophic thoroughness with which he explained it, and the practical knowledge with which he illustrated it. After insisting on the advantages of the division of labour, and pointing out how they render it possible for increased numbers to live in comfort on a limited territory, he argued that the pressure of population on the means of subsistence tends to weed out those races who through want of organization or for any other cause are unable to turn to the best account the advantages of the place in which they live.

and since his time economists and biologists have worked together in examining the influence which the struggle for survival has exerted on organization.

Before Adam Smith's book had yet found many readers, biologists were already beginning to make great advances towards understanding the real nature of the differences in organization which separate the higher from the lower animals; and before two more generations had elapsed Malthus' historical account of man's struggle for existence set Darwin thinking as to the effects of the struggle for existence in the animal world. Since that time biology has more than repaid her debt; and economists have in their turn owed much to the many profound analogies which have been discovered between social and especially industrial organization on the one side, and the physical organization of the higher animals on the other. In a few cases indeed the

apparent analogies disappeared on closer inquiry: but many of those which seemed at first sight most fanciful, have gradually been supplemented by others, and have at last established their claim to illustrate a fundamental unity of action between the laws of nature in the physical and in the moral world. This central unity is set forth in the general rule, to which there are not very many exceptions, that the development of the organism, whether social or physical, involves a greater subdivision of functions between its separate parts on the one hand, and on the other a more intimate connection between them[1]. Each part gets to be less and less self-sufficient, to depend for its well-being more and more on other parts, so that no change can take place in any part of a highly developed organism without affecting others also.

Differentiation and Integration.

This increased subdivision of functions, or "differentiation" as it is called, manifests itself with regard to industry in such forms as the division of labour, and the development of specialized skill, knowledge and machinery: while "integration," that is, a growing intimacy and firmness of the connections between the separate parts of the industrial organism, shows itself in such forms as the increase of security of commercial credit, and of the means and habits of communication by sea and road, by railway and telegraph, by post and printing-press.

The doctrine that those organisms which are the most highly developed, in the sense in which we have just used the phrase, are those which are most likely to survive in the struggle for existence, is as yet but partly thought out and imperfectly established, so far as its minor details go, both in biology and in social science. And without pursuing this point further at present, we may pass to consider the main bearings in economics of the law that the struggle for existence causes those organisms to multiply which are best fitted to derive benefit from their environment; or, to use a more familiar phrase, that a demand for any economic arrangement will soon create a supply of it.

[1] Besides the writings of Herbert Spencer on this subject, and Bagehot's *Physics and Politics*, see a brilliant paper by Häckel on *Arbeitstheilung in Menschen und Thierenleben*. Reference may also be made to Schäffle's *Bau und Leben des socialen Körpers*, and to Hearn's *Plutology*.

The law of struggle for survival requires to be carefully interpreted.

The law requires to be interpreted carefully: for the fact that a thing is beneficial to its environment will not by itself secure its survival either in the physical or in the moral world. The law of "survival of the fittest" states that those organisms tend to survive which are best fitted to utilize the environment for their own purposes; not those which are best fitted to benefit the environment, except in so far as, by benefiting it, they may increase the support which they derive from it. In order therefore that the demand for any industrial arrangement may be certain to call forth a supply, it must be something more than a mere desire for the arrangement, or a need for it, such as a desire on the part of employés for a share in the management and the profits of the factory in which they work, or the need on the part of clever youths for a good technical education. It must be an *efficient demand*; that is, it must take effect by offering payment or some other benefit to those who supply it[1]; otherwise it is not a demand in the sense in which the term is used when it is said that supply naturally and surely follows demand. This seems a hard fact: but some of its harshest features are softened down by the principle of heredity; which causes those races to flourish in their environment the members of which render unrequited services to other members.

Its harshest features softened by the principle of heredity.

No race can survive in the vegetable or animal world in which the parents neglect the interests of their offspring.

§ 2. Even in the vegetable world a species of plants, however vigorous in its growth, which should be neglectful of the interests of its seeds, would soon perish from the earth. The standard of family and race duty is often high in the animal kingdom; and even those predatory animals which we are accustomed to regard as the types of cruelty, which fiercely utilize the environment and do nothing else for it in return, must yet be willing as individuals to exert themselves for the benefit of their offspring. And going beyond the narrower interests of the family to those of the race, we find that among so-called social animals, such as bees and ants,

[1] Like all other doctrines of the same class, this requires to be interpreted in the light of the fact that the effective demand of a purchaser depends on his means, as well as on his wants: a small want on the part of a rich man often has more effective force in controlling the business arrangements of the world than a great want on the part of a poor man.

those races survive in which the individual is most energetic in performing varied services for the society without the prompting of direct gain to himself.

But when we come to human beings, endowed with reason and speech, the influence of a tribal sense of duty in strengthening the tribe takes a more varied form. It is true that in the ruder stages of human life many of the services rendered by the individual to others are nearly as much due to hereditary habit and unreasoning impulse as are those of the bees and ants. But deliberate, and therefore moral, self-sacrifice soon makes its appearance; it is fostered by the far-seeing guidance of prophets and priests and legislators, and is inculcated by parable and legend. Gradually the unreasoning sympathy, of which there are germs in the lower animals, extends its area and gets to be deliberately adopted as a basis of action: tribal affection, starting from a level hardly higher than that which prevails in a pack of wolves or a horde of banditti, gradually grows into a noble patriotism; and religious ideals are raised and purified. The races in which these qualities are the most highly developed are sure, other things being equal, to be stronger than others in war, in contests with famine and disease, and to prevail in the long run. Thus the struggle for existence causes in the long run those races of men to survive, in which the individual is most willing to sacrifice himself for the benefit of his environment; and which are consequently the best adapted collectively to make use of their environment.

In man self-sacrifice becomes deliberate, and is the basis of the strength of the race.

Unfortunately however not all the qualities which enable one race to prevail over another, benefit mankind as a whole. It would no doubt be wrong to lay very much stress on the fact that warlike habits have often enabled half-savage races to reduce to submission others who were their superiors in every peaceful virtue; for such conquests have in the long run increased the physical vigour of the world, and its capacity for great things, and ultimately perhaps have done more good than harm. But there is no such qualification to the statement that a race does not establish its claim to deserve well of the world by the mere fact that it flourishes in the midst or on the surface of another race; for it may

But good is mixed with the evil,

especially in the case of a parasitic race.

do so by having merely the parasitic power of turning the peculiarities of that race to good account for its own purposes. The fact that there is an economic demand for the service of Jewish and Armenian money-dealers in Eastern Europe and Asia, or for Chinese labour in California, is not by itself a proof, nor even a very strong ground for believing, that such arrangements would tend to raise the quality of human life as a whole. For, though a race entirely dependent on its own resources can scarcely prosper unless it is fairly endowed with all the most important social virtues; it is possible for a race, which has not these virtues and which is not capable of independent greatness, yet to thrive on its relations with another race. But such cases are exceptional: and on the whole heredity softens the harshest features of the struggle for existence among the races of men; and causes those races to survive and predominate in which the best qualities are most strongly developed.

The predominance of the caste system in early times proves that it was useful, but not that it was free from drawbacks even then.

§ 3. This influence of heredity shows itself nowhere more markedly than in social organization. For that must necessarily be a slow growth, the product of many generations: it must be based on those customs and aptitudes of the great mass of the people which are incapable of quick change. In early times when religious, ceremonial, political, military and industrial organization were intimately connected, and were indeed but different sides of the same thing, nearly all those nations which were leading the van of the world's progress were found to agree in having adopted a more or less strict system of caste: and this fact by itself proved that the distinction of castes was well suited to its environment, and that on the whole it strengthened the races or nations which adopted it. For since it was a controlling factor of life, the nations which adopted it could not have generally prevailed over others, if the influence exerted by it had not been in the main beneficial. Their pre-eminence proved not that it was free from defects, but that its excellencies, relatively to that particular stage of progress, outweighed its defects.

Some of its incidents were

We know that in the animal or vegetable kingdom a species may differ from its competitors by having two

always more or less evil.

qualities one of which is of great advantage to it, while the other is unimportant, perhaps even slightly injurious, and that the former of these qualities will make the species succeed in spite of its having the latter: the survival of which will then be no proof that it is beneficial. Thus the struggle for existence has kept alive many qualities and habits in the human race which were in themselves of no advantage, but which are associated by a more or less permanent bond with others that are great sources of strength. Such instances are found in the tendency to an overbearing demeanour and a scorn for patient industry among nations that owe their advance chiefly to military victories; and again in the tendency among commercial nations to think too much of wealth and to use it for the purposes of display. But the most striking instances are found in matters of organization; the excellent adaptation of the system of caste for the special work which it had to do, enabled it to flourish in spite of its great faults, the chief of which were its rigidity, and its sacrifice of the individual to the interests of society, or rather to certain special exigencies of society.

The same is true of the relations between different industrial classes in the modern Western world.

Passing over intermediate stages and coming at once to the modern organization of the Western world, we find it offering a striking contrast, and a no less striking resemblance, to the system of caste. On the one hand rigidity has been succeeded by plasticity: the methods of industry which were then stereotyped, now change with bewildering quickness; the social relations of classes, and the position of the individual in his class, which were then definitely fixed by traditional rules, are now perfectly variable and change their forms with the changing circumstances of the day. But on the other hand the sacrifice of the individual to the exigencies of society as regards the production of material wealth seems in some respects to be a case of atavism, a reversion to conditions which prevailed in the far-away times of the rule of caste. For the division of labour between the different ranks of industry and between different individuals in the same rank is so thorough and uncompromising, that the real interests of the producer are sometimes in danger of being sacrificed for the sake of increasing the addition which

his work makes to the aggregate production of material wealth.

Adam Smith was more careful to guard against extravagance than many of his followers.

§ 4. Adam Smith while insisting on the general advantages of that minute division of labour and of that subtle industrial organization which were being developed with unexampled rapidity in his time, was yet careful to indicate many points in which the system failed, and many incidental evils which it involved[1]. But many of his followers with less philosophic insight, and in some cases with less real knowledge of the world, argued boldly that whatever is, is right. They were not contented with insisting that the new industrial organization was spreading rapidly and obtaining victories over its rivals in every direction, and that this very fact proved that it met a want of the times, and had a good balance of advantages over disadvantages. But they went further and applied the same argument to all its details; not perceiving that the very strength of the system as a whole enabled it to carry along with it many incidents which were in themselves evil. For a while they fascinated the world by their romantic accounts of the flawless proportions of that "natural" organization of industry which had grown from the rudimentary germ of self-interest; each man selecting his daily work with the sole view of getting for it the best pay he could, but with the inevitable result of choosing that in which he could be of most service to others. They argued for instance that, if a man had a talent for managing business, he would be surely led to use that talent for the benefit of mankind: that meanwhile a like pursuit of their own interests would lead others to provide for his use such capital as he could turn to best account; and that his own interest would lead him so to arrange those in his employment that every one should do the highest work of which he was capable, and none other; and that it would lead him to purchase and use all machinery and other aids to production which could in his hands contribute towards supplying the wants of the world more than the equivalent of their own cost.

It is true that the natural organization of society is far more subtle and efficient than at first sight appears;

They were right in contending that these were important

[1] Reference has already been made (Bk. I. Ch. IV. § 3) to the inaccurate use of the term *Smithianismus* in Germany.

truths which could not be properly understood without a much more careful study than was given to them by those ready writers who, then as now, attained an easy popularity by indiscriminate attacks on the existing state of society. But their own defence of it, though more intelligent, was almost equally open to the charge of partisan bias. The romantic subtilty of this "natural organization of industry" had a fascination for earnest and thoughtful minds; it prevented them from seeing and removing the evil that was intertwined with the good in the changes that were going on around them; and it hindered them from inquiring whether many even of the broader features of modern industry may not be transitional, having indeed good work to do in their time, as the caste system had in its time: but like it chiefly serviceable in leading the way towards better arrangements for a happier age.

but harm was done by their indiscriminate eulogies of it.

§ 5. Moreover the doctrine took no account of the manner in which organs are strengthened by being used. Mr Herbert Spencer has done more than any one else to establish the truth and the significance of the law that if any physical or mental exercise gives pleasure, and is therefore frequent, those physical or mental organs which are used in it are likely to grow rapidly. Among the lower animals indeed the action of this law is so intimately interwoven with that of the survival of the fittest, that the distinction between the two need not often be emphasized. For as it may have been guessed *a priori*, and as seems to be well proved by observation, the effect of the struggle for survival is almost entirely to prevent animals from taking pleasure in the exercise of any functions which do not directly contribute to their well-being[1]. But man, with his strong individuality, has greater

Moreover they took too little account of the development of faculties by use.

[1] The giraffe whose long neck enables it to survive by feeding on the shoots of trees when the grass is dried up, may possibly lengthen its neck yet further by constantly stretching it, and thus further increase its power of surviving; but this effect is not purposely sought. Again, the tendency for all peculiarities of this sort to increase their rate of growth as time goes on, within certain limits, is allowed to work itself out unopposed (unless by sexual selection) in the animal kingdom. The longer, within certain limits, a giraffe's neck is, and the more exclusively he feeds on the shoots of trees, the more will his chance of survival depend on the length of his neck; and the greater will be the force which the struggle for survival will exert in tending to accelerate that growth (see Note XI.

freedom. He delights in the use of his faculties for their own sake; sometimes using them nobly, whether with the abandon of the great Greek burst of life, or under the control of a deliberate and steadfast striving towards important ends; sometimes ignobly as in the case of a morbid development of the taste for drink. The physical superiority of the English race over all others that have lived as largely as we are doing a town life, is due to a great extent to the games in which our youth exercises its physical faculties for the sake of exercising them: the religious, the moral, the intellectual and the artistic faculties on which the progress of industry depends, are not acquired solely for the sake of the things that may be got by them; but are developed by exercise for the sake of the pleasure and the happiness which they themselves bring: and, in the same way, that great factor of economic prosperity, the organization of a well-ordered state, is the product of an infinite variety of motives; many of which have no direct connection with the pursuit of national wealth.

The question whether our present system is needlessly wasteful of the higher faculties of the lower grades of industry is a type of those which we must have in our minds during the following chapters;

We ought then to inquire whether the present industrial organization might not with advantage be so modified as to increase the opportunities which the lower grades of industry have for using their mental faculties, for deriving pleasure from their use, and for strengthening them by use. The argument that if such a change had been beneficial, it would have been already brought about by the struggle for survival, must be rejected as invalid, because the struggle acts slowly. For though it may be true that development would of itself tend in that direction, its action would be slow; and it is the prerogative of man to hasten the progress of development by forecasting its next step and preparing the way for it. In harmony with the results of our inquiries as to the supply of labour we may conclude that changes which add but little to the immediate efficiency of production, may be worth having if they make us ready and

in the Appendix). But man with his many motives, as he may set himself deliberately to encourage the growth of one peculiarity, may equally set himself to check the growth of another: the slowness of progress during the Middle Ages was partly due to a deliberate detestation of learning.

fit for a higher organization which will be more effective in the production of wealth and more equal in its distribution. Such are the considerations which we must have in our minds when examining the present forms of the organization of industry, and the part which they play in governing the supply of material wealth: but a final judgment as to their good and evil effects must be deferred until we are able to take a broader survey. Many important elements of the problem, in particular those connected with the fluctuations of trade, and the inconstancy of employment, depending as they do upon the influence of foreign competition, and of changes in the money market, lie beyond the sphere of those elementary inquiries as to the methods of production which we are to make in the following chapters.

though its answer cannot be reached yet.

CHAPTER IX.

INDUSTRIAL ORGANIZATION, CONTINUED. DIVISION OF LABOUR. THE INFLUENCE OF MACHINERY.

The course of inquiry in this and the two following chapters.

§ 1. THE first condition of an efficient organization of industry is that it should keep every one employed at such work as his abilities and training fit him to do well, and should equip him with the best machinery and other appliances for his work. We shall leave on one side for the present the distribution of functions between those who carry out the details of production on the one hand, and those who manage its general arrangement and undertake its risks on the other; and confine ourselves to the division of labour between different classes of operations, with special reference to the influence of machinery. In the following chapter we shall consider the reciprocal effects of division of labour and localization of industry; in a third chapter we shall inquire how far the advantages of division of labour depend upon the aggregation of large capitals into the hands of single individuals or firms, or, as is commonly said, on production on a large scale; and lastly we shall examine the growing specialization of the work of business management.

Practice makes perfect.

Every one is familiar with the fact that "practice makes perfect," that it enables an operation, which at first seemed difficult, to be done after a time with comparatively little exertion, and yet much better than before; and physiology in some measure explains this fact. For it gives reasons for believing that the change is due to the gradual growth of new habits of more or less "reflex" or automatic action. Perfectly reflex actions, such as that of breathing during sleep, are performed by the responsibility of the local nerve

Physiological explanation.

centres without any reference to the supreme central authority of the thinking power, which is supposed to reside in the cerebrum. But all deliberate movements require the attention of the chief central authority: it receives information from the nerve centres or local authorities and perhaps in some cases direct from the sentient nerves, and sends back detailed and complex instructions to the local authorities or in some cases direct to muscular nerves, and so co-ordinates their action as to bring about the required results.

Skill in physical exercises. Illustration from skating.

For instance the first time a man attempts to skate, he must give his whole attention to keeping his balance, his cerebrum has to exercise a direct control over every movement, and he has not much mental energy left for other things. But after a good deal of practice, the action becomes semi-automatic, the local nerve centres undertake nearly all the work of regulating the muscles, the cerebrum is set free, and the man can carry on an independent train of thought; he can even alter his course to avoid an obstacle in his path, or recover his balance, after it has been disturbed by a slight unevenness, without in any way interrupting the course of his thoughts. It seems that the exercise of nerve force under the immediate direction of the thinking power residing in the cerebrum has gradually built up a set of connections, involving probably distinct physical change, between the nerves and nerve centres concerned; and these new connections may be regarded as a sort of capital of nerve force. There is probably something like an organized bureaucracy of the local nerve centres: the medulla, the spinal axis, and the larger ganglia generally acting the part of provincial authorities, and being able after a time to regulate the district and village authorities without troubling the supreme government. Very likely they send up messages as to what is going on: but if nothing much out of the way has happened, these are very little attended to. When however a new feat has to be accomplished, as for instance learning to skate backwards, the whole thinking force will be called into requisition for the time; and will now be able by aid of the special skating-organization of the nerves and nerve centres to do

what would have been altogether impossible without such aid.

The artist's hand and eye.

To take a higher instance: when an artist is painting at his best, his cerebrum is fully occupied with his work: his whole mental force is thrown into it, and the strain is too great to be kept up for a long time together. In a few hours of happy inspiration he may give utterance to thoughts that exert a perceptible influence on the character of coming generations; but his power of expression had been earned by numberless hours of plodding work in which he had gradually built up an intimate connection between eye and hand, sufficient to enable him to make good rough sketches of things with which he is tolerably familiar, even while he is engaged in an engrossing conversation and is scarcely conscious that he has a pencil in his hand.

Knowledge and intellectual ability.

The physiological basis of purely mental work is not yet well understood; but what little we do know of the growth of brain structure, seems to indicate that practice in any kind of thinking developes new connections between different parts of the brain. Anyhow we know for a fact that practice will enable a person to solve quickly, and without any considerable exertion, questions which he could have dealt with but very imperfectly a little while before even by the greatest effort. The mind of the merchant, the lawyer, the physician, and the man of science, becomes gradually equipped with a store of knowledge and a faculty of intuition, which can be obtained in no other way than by the continual application of the best efforts of a powerful thinker for many years together to one more or less narrow class of questions. Of course the mind cannot work hard for many hours a day in one direction: and a hard-worked man will sometimes find recreation in work that does not belong to his business, but would be fatiguing enough to a person who had to do it all day long. Some social reformers have indeed maintained that those who do the most important brain work, might do a fair share of manual work also, without diminishing their power of acquiring knowledge or thinking out hard questions. But experience seems to show that the best relief from overstrain is in occupations taken up to suit the mood of the

moment and stopped when the mood is passed, that is, in what popular instinct classes as "relaxation." Any occupation which is so far business-like that a person must sometimes force himself by an effort of the will to go on with it, draws on his nervous force and is not perfect relaxation: and therefore it is not economical from the point of view of the community unless its value is sufficient to outweigh some injury to his main work[1].

In the higher grades of work extreme specialization does not always increase efficiency.

§ 2. It is a difficult and unsettled question how far specialization should be carried in the highest branches of work. In science it seems to be a sound rule that the area of study should be broad during youth, and should gradually be narrowed as years go on. A medical man who has always given his attention exclusively to one class of diseases, may perhaps give less wise advice even in his special subject than another who, having learnt by wider experience to think of those diseases in relation to general health, gradually concentrates his study more and more on them, and accumulates a vast store of special experiences and subtle instincts relating to them. But however much doubt there may be on matters of this sort, there is no room for difference of opinion as to the increased efficiency which can be attained through division of labour in those occupations in which there is much demand for mere manual skill.

But it is easy to acquire a high manual skill in a narrow range of work.

Adam Smith pointed out that a lad who had made nothing but nails all his life could make them twice as quickly as a firstrate smith who only took to nail making occasionally. Any one who has to perform exactly the same set of operations day after day on things of exactly the same shape, gradually learns to move his fingers exactly as

[1] J. S. Mill went so far as to maintain that his occupations at the India Office did not interfere with his pursuit of philosophical inquiries. But it seems probable that this diversion of his freshest powers lowered the quality of his best thought more than he was aware; and though it may have diminished but little his remarkable usefulness in his own generation, it probably affected very much his power of doing that kind of work which influences the course of thought in future generations. It was by husbanding every atom of his small physical strength that Darwin was enabled to do so much work of just that kind: and a social reformer who had succeeded in exploiting Darwin's leisure hours in useful work on behalf of the community, would have done a very bad piece of business for it.

they are wanted, by almost automatic action and with greater rapidity than would be possible if every movement had to wait for a deliberate instruction of the will. One familiar instance is seen in the tying of threads by children in a cotton mill. Again in a clothing or a boot factory, a person who sews, whether by hand or machinery, just the same seam on a piece of leather or cloth of just the same size, hour after hour, day after day, is able to do it with far less effort and far more quickly than a worker with much greater quickness of eye and hand, and of a much higher order of general skill, who was accustomed to make the whole of a coat or the whole of a boot[1].

The uniformity of many processes in the wood and metal trades.

Again, in the wood and the metal industries, a man who has to perform exactly the same operations over and over again on the same piece of material gets into the habit of holding it exactly in the way in which it is wanted, and of arranging the tools and other things which he has to handle in such positions that he is able to bring them to work on one another with the least possible loss of time and of force in the movements of his own body. Accustomed to find them always in the same position and to take them in the same order, his hands work in harmony with one another almost automatically: and as his practice increases, his expenditure of nervous force diminishes even more rapidly than his expenditure of muscular force. But when the action has thus been reduced to routine it has nearly arrived at the stage at which it can be taken over by machinery. The chief difficulty to be overcome is that of getting the machinery

[1] The best and most expensive clothes are made by highly skilled and highly paid tailors, each of whom works right through first one garment and then another; while the cheapest and worst clothes are made for starvation wages by unskilled women who take the cloth to their own homes and do every part of the sewing themselves. But clothes of intermediate qualities are made in workshops or factories, in which the division and subdivision of labour is carried as far as the size of the staff will permit; and this method is rapidly gaining ground at both ends at the expense of the rival method. (See Miss Beatrice Potter's article on *East London Labour* in *The Nineteenth Century* for August, 1888.) Very much the same account may be given of the present condition of the boot trade; in very large American boot factories, more than ninety distinct classes of workers are already recognized. (See *the Report of the New York Bureau of Statistics of Labour* for 1886.)

to hold the material firmly in exactly the position in which the machine tool can be brought to bear on it in the right way, and without wasting meanwhile too much time in taking grip of it. But this can generally be contrived when it is worth while to spend some labour and expense on it; and then the whole operation can often be controlled by a worker who, sitting before the machine, takes with the left hand a piece of wood or metal from a heap and puts it in a socket, while with the right he draws down a lever, or in some other way sets the machine tool at work, and finally with his left hand throws on to another heap the material which has been cut or punched or drilled or planed exactly after a given pattern. It is in these industries especially that we find the reports of modern trades unions to be full of complaints that unskilled labourers, and even their wives and children, are put to do work which used to require the skill and judgment of a trained mechanic, but which has been reduced to mere routine by the improvement of machinery and the ever-increasing minuteness of the sub-division of labour.

Machinery takes over sooner or later all monotonous work in manufacture

§ 3. We are thus led to a general rule, the action of which is more prominent in some branches of manufacture than others, but which applies to all. It is, that any manufacturing operation that can be reduced to uniformity, so that exactly the same thing has to be done over and over again in the same way, is sure to be taken over sooner or later by machinery. There may be delays and difficulties; but if the work to be done by it is on a sufficient scale, money and inventive power will be spent without stint on the task till it is achieved[1].

[1] For instance, one great inventor is rumoured to have spent £300,000 on experiments relating to textile machinery; and his outlay is said to have been abundantly returned to him. No doubt some of his inventions were of such a kind as can be made only by a man of genius; and however great the need, they must have waited till the right man was found for them. It is said that he charged not unreasonably £1000 as royalty for each of his combing machines, and I have been told by a worsted manufacturer that, being full of work, he found it worth his while to buy an additional machine, and pay this extra charge for it, only six months before the expiry of the patent. But such cases are exceptional; as a rule patented machines are not very dear. In some cases the economy of having them all produced at one place by special machinery has been so great that the

and after a time requires less and less watching.

New machinery, when just invented, generally requires a great deal of care and attention. But the work of its attendant is always being sifted; that which is uniform and monotonous is gradually taken over by the machine, which thus becomes steadily more and more automatic and self-acting; till at last there is nothing for the hand to do, but to supply the material at certain intervals and to take away the work when finished. There still remains the responsibility for seeing that the machinery is in good order and working smoothly; but even this task is often made light by the introduction of an automatic movement, which brings the machine to a stop the instant anything goes wrong.

Illustration from the textile industries.

Nothing could be more narrow or monotonous than the occupation of a weaver of plain stuffs in the old time. But now one woman will manage four or more looms, each of which does many times as much work in the course of the day as the old hand loom did; and her work is much less monotonous and calls for much more judgment than his did. So that for every hundred yards of cloth that are woven, the purely monotonous work done by human beings is probably not a twentieth part of what it was[1].

The division of labour in relation to the growth of machinery.

Thus the two movements of the improvement of machinery and the growing subdivision of labour have gone together and are in some measure connected. But the connection is not so close as is generally supposed. It is the largeness of markets, the increased demand for great numbers of things of the same kind, and in some cases of things made with great accuracy, that leads to subdivision

patentee has found it to his advantage to sell them at a price lower than the old price of the inferior machines which they displaced: for that old price gave him so high a profit, that it was worth his while to lower the price still further in order to induce the use of the machines for new purposes and in new markets. In almost every trade many things are done by hand, though it is well known that they could easily be done by some adaptations of machines that are already in use in that or some other trade, and which are not made only because there would not as yet be enough employment for them to remunerate the trouble and expense of making them.

[1] The efficiency of labour in weaving has been increased twelve-fold and that in spinning six-fold during the last seventy years. In the preceding seventy years the improvements in spinning had already increased the efficiency of labour two hundred-fold (see Ellison's *Cotton Trade of Great Britain*, ch. iv. and v.).

of labour; the chief effect of the improvement of machinery is to cheapen and make more accurate the work which would anyhow have been subdivided. For instance, "in organizing the works at Soho, Boulton and Watt found it necessary to carry division of labour to the furthest practicable point. There were no slide-lathes, planing machines or boring tools, such as now render mechanical accuracy of construction almost a matter of certainty. Everything depended on the individual mechanic's accuracy of hand and eye; yet mechanics generally were much less skilled then than they are now. The way in which Boulton and Watt contrived partially to get over the difficulty was to confine their workmen to special classes of work, and make them as expert in them as possible. By continued practice in handling the same tools and fabricating the same articles, they thus acquired great individual proficiency[1]." Thus machinery constantly supplants and renders unnecessary that purely manual skill, the attainment of which was, even up to Adam Smith's time, the chief advantage of division of labour. But this influence is more than countervailed by its tendency to increase the scale of manufactures and to make them more complex; and therefore to increase the opportunities for division of labour of all kinds, and especially in the matter of business management.

Machinery displaces purely manual skill;

and thus diminishes some of the advantages of division of labour: but increases the scope for it.

§ 4. The powers of machinery to do work that requires too much accuracy to be done by hand are perhaps best seen in some branches of the metal industries in which the system of Interchangeable Parts is being rapidly developed. It is only after long training and with much care and labour that the hand can make one piece of metal accurately to resemble or to fit into another: and after all the accuracy is not perfect. But this is just the work which a well made machine can do most easily and most perfectly. For instance if sowing and reaping machines had to be made by hand, their first cost would be very high; and when any part of them was broken, it could be replaced only at great cost by sending the machine back to the manufacturer or by

Machine-made machinery is introducing the new era of Interchangeable Parts.

[1] Smiles' *Boulton and Watt*, pp. 170—1.

bringing a highly skilled mechanic to the machine. But as it is, the manufacturer keeps in store many facsimiles of the broken part, which were made by the same machinery, and are therefore interchangeable with it. A farmer in the North-West of America, perhaps a hundred miles away from any good mechanic's shop, can yet use complicated machinery with confidence; since he knows that by telegraphing the number of the machine and the number of any part of it which he has broken, he will get by the next train a new piece which he can himself fit into its place. The importance of this principle of interchangeable parts has been but recently grasped; there are however many signs that it will do more than any other to extend the use of machine-made machinery to every branch of production, including even domestic and agricultural work[1].

Illustration from the history of the watch-making trade.

The influences which machinery exerts over the character of modern industry are well illustrated in the manufacture of watches. A few years ago the chief seat of this business was in French Switzerland; where the subdivision of labour was carried far, though a great part of the work was done by a more or less scattered population. There were about fifty distinct branches of trade each of which did one small part of the work. In almost all of them a highly specialized manual skill was required, but very little judgment; the earnings were generally low, because the trade had been established too long for those in it to have anything like a monopoly, and there was no difficulty in bringing up to it any child with ordinary intelligence. But this industry is now yielding ground to the American system of making watches by machinery, which requires very little specialized manual skill. In fact the machinery is becoming every year more and more automatic, and is getting to require less and less assistance from the human hand. But the more delicate the machine's power, the greater is the judgment and carefulness which is called for from those

Complex machinery displaces

[1] The system owes its origin in great measure to Sir Joseph Whitworth's standard gauges; but it has been worked out with most enterprise and thoroughness in America. There is a good account of it by Mr Trowbridge in Vol. II. of the Report of the tenth census for the United States.

the demand for judgment and general intelligence;

who see after it. Take for instance a beautiful machine which feeds itself with steelwire at one end, and delivers at the other tiny screws of exquisite form; it displaces a great many operatives who had indeed acquired a very high and specialized manual skill, but who lived sedentary lives, straining their eyesight through microscopes, and finding in their work very little scope for any faculty except a mere command over the use of their fingers. But the machine is intricate and costly, and the person who minds it must have an intelligence, and an energetic sense of responsibility, which go a long way towards making a fine character; and which, though more common than they were, are yet sufficiently rare to be able to earn a very high rate of pay. No doubt this is an extreme case; and the greater part of the work done in a watch factory is much simpler. But a great deal of it requires higher faculties than the old system did, and those engaged in it earn on the average higher wages; at the same time that it has already brought the price of a trustworthy watch within the range of the poorest classes of the community and is showing signs of being able soon to accomplish the very highest class of work[1].

and in some cases weakens the barriers that divide different trades.

Those who finish and put together the different parts of a watch must always have highly specialized skill: but most of the machines which are in use in a watch factory, are not different in general character from those which are used in any other of the lighter metal trades: in fact many of them are mere modifications of the turning lathes and of the slotting, punching, drilling, planing, shaping, milling machines and a few others, which are familiar to all engineering trades. This is a good illustration of the fact that while there is a constantly increasing subdivision of labour, many of the lines of division between trades which are nominally distinct are becoming narrower and less difficult to be

[1] The perfection which the machinery has already attained is shown by the fact that at the Inventions Exhibition recently held in London, the representative of an American watch factory took to pieces fifty watches before some English representatives of the older system of manufacture, and after throwing the different parts into fifty different heaps, asked them to select for him one piece from each heap in succession; he then set these pieces up in one of the watch cases and handed them back a watch in perfect order.

passed. In old times it would have been very small comfort to watch-makers, who happened to be suffering from a diminished demand for their wares, to be told that the gun-making trade was in want of extra hands; but most of the operatives in a watch factory would find machines very similar to those with which they were familiar, if they strayed into a gun-making factory or sewing-machine factory, or a factory for making textile machinery. A watch factory with those who worked in it could be converted without any overwhelming loss into a sewing-machine factory: almost the only condition would be that no one should be put in the new factory to work which required a higher order of general intelligence, than that to which he was already accustomed.

Illustration from the printing trade.

§ 5. The printing trade affords another instance of the way in which an improvement of machinery and an increase in the volume of production causes an elaborate subdivision of labour. Everyone is familiar with the pioneer newspaper editor of newly settled districts of America, who sets up the type of his articles as he composes them; and with the aid of a boy prints off his sheets and distributes them to his scattered neighbours. When however the mystery of printing was new, the printer had to do all this for himself, and in addition to make all his own appliances[1]. These are now provided for him by separate "subsidiary" trades, from whom even the printer in the backwoods can obtain everything that he wants to use. But in spite of the assistance which it thus gets from outside, a large printing establishment has to find room for many different classes of workers within its walls. To say nothing of those who organize and superintend the business, of those who do its office work and keep its stores, of the skilled "readers" who correct any errors that may have crept into the "proofs," of its engineers and repairers of machinery, of those who cast, and who correct

[1] "The type founder was probably the first to secede from the concern; then printers delegated to others the making of presses; afterwards the ink and the rollers found separate and distinct manufacturers; and there arose a class of persons who, though belonging to other trades, made printing appliances a specialty, such as printers' smiths, printers' joiners and printers' engineers" (Mr Southward in the Article on *Typography* in the *Encyclopædia Britannica*).

and prepare its stereotype plates; of the warehousemen and the boys and girls who assist them, and several other minor classes; there are the two great groups of the compositors who set up the type, and the machinists and pressmen who print impressions from them. Each of these two groups is divided into many smaller groups, especially in the large centres of the printing trade. In London, for instance, a minder who was accustomed to one class of machine, or a compositor who was accustomed to one class of work, if thrown out of employment would not willingly abandon the advantage of his specialized skill, and falling back on his general knowledge of the trade seek work at another kind of machine or in another class of work[1]. These barriers between minute subdivisions of a trade count for a great deal in many descriptions of the modern tendency towards specialization of industry; and to some extent rightly, because though many of them are so slight that a man thrown out of work in one subdivision could pass into one of its neighbours without any great loss of efficiency, yet he does not do so until he has tried for a while to get employment in his old lines; and therefore the barriers are as effective as stronger ones would be so far as the minor fluctuations of trade from week to week are concerned. But they are of an altogether different kind from the deep and broad partitions which divided one group of mediæval handicraftsmen from another, and which caused the lifelong suffering of the handloom-weavers when their trade had left them.

Instance of the multiplication in modern industry of thin lines of division, which can be passed without great difficulty.

But let us follow still further the progress of machinery

The newspaper trade.

[1] A minder, for instance, Mr Southward tells us "may understand only book machines or only news machines; he may know all about" machines that print from flat surfaces or those that print from cylinders; "or of cylinders he may know only one kind. Entirely novel machines create a new class of artisans. There are men perfectly competent to manage a Walter press who are ignorant how to work two-colour or fine book-work machines. In the compositor's department division of labour is carried out to a still minuter degree. An old-fashioned printer would set up indifferently a placard, a title-page, or a book. At the present day we have jobbing hands, book hands and news hands, the word 'hand' suggesting the factory-like nature of the business. There are jobbing hands who confine themselves to posters. Book hands comprise those who set up the titles and those who set up the body of the work. Of these latter again, while one man composes, another, the 'maker-up', arranges the pages."

in supplanting manual labour in some directions and opening out new fields for its employment in others. Let us watch the process by which large editions of a great newspaper are set up and printed off in a few hours.

To begin with, a good part of the type-setting is itself often done by a machine; but in any case the types are in the first instance on a plane surface, from which it is impossible to print very rapidly. The next step therefore is to make a papier-maché cast of them, which is bent on to a cylinder, and is then used as the mould from which a new metal plate is cast that fits the cylinders of the printing machine. Fixed on these it rotates alternately against the inking cylinders and the paper. The paper is arranged in a huge roll at the bottom of the machine and unrolls itself automatically first against the damping cylinders and then against the printing cylinders, the first of which prints it on one side, and the second on the other: thence to the cutting cylinders which cut it into equal lengths and thence to the folding apparatus which folds it ready for sale. When the machinery has been got ready, one man can manage it entirely and it will print off 12,000 copies in an hour.

Instance of the increased demand for faculties of a high order caused by machinery.

Now looking at all this we are struck on the one hand by the power of mechanical and scientific appliances to attain results that would be impossible without them: and on the other hand by the persistent way in which they take over work that used to require manual skill and dexterity, but not much judgment; while they leave for man's hand all those parts which do require the use of judgment, and open up all sorts of new occupations in which there is a great demand for it. Every improvement and cheapening of the printer's appliances increases the demand for the judgment and discretion and literary knowledge of the reader, for the skill and taste of those who know how to set up a good title page, or how to make ready a sheet on which an engraving is to be printed, so that light and shade will be distributed properly. It increases the demand for the gifted and highly-trained artists who draw or engrave on wood and stone and metal, and for those who know how to give an accurate report in ten lines of the substance of a

speech that occupied ten minutes—an intellectual feat the difficulty of which we underrate, because it is so frequently performed. And again, it tends to increase the work of photographers and electrotypers, and stereotypers, of the makers of printer's machinery, and many others who get a higher training and a higher income from their work than did those layers on and takers off, and those folders of newspapers who have found their work taken over by iron fingers and iron arms.

Machinery relieves the strain on human muscles.

§ 6. We may now pass to consider the effects which machinery has in relieving that excessive muscular strain which a few generations ago was the common lot of more than half the working men even in such a country as England. The most marvellous instances of the power of machinery are seen in large iron works, and especially in those for making armour plates, where the force to be exerted is so great that man's muscles count for nothing, and where every movement, whether horizontal or vertical, has to be effected by hydraulic or steam force, and man stands by governing the machinery and occasionally clearing away ashes or performing some such secondary task. Machinery of this class has increased our command over nature, but it has not directly altered the character of man's work very much; for that which it does he could not have done without it. Let us then look at work such as that of house carpenters who make things of the same kind as those used by our forefathers, but with much less toil for themselves. They now give themselves chiefly to those parts of the task which are most pleasant and most interesting; while in every country town and almost every village there are found steam mills for sawing, planing and moulding, which relieve them of that grievous fatigue which not very long ago used to make them prematurely old[1].

[1] The jack-plane, used for making smooth large boards for floors and other purposes, was the worst enemy of the carpenter. All but specially skilled men were compelled to spend a great part of their time with the jack-plane, and this brought on heart disease, making them as a rule old men by the time they were forty. But now those who become prematurely old through overwork, are to be found almost exclusively among the professional classes, among those engaged in the more anxious kinds of business, and in some agricultural districts in which the rate of wages is still very low and the people are habitually underfed. Adam

It thus prevents monotony of work from involving monotony of life.

Facts of this kind are to be found in the recent history of many trades: and they are of great importance when we are considering the way in which the modern organization of industry is tending to narrow the scope of each person's work, and thereby to render it monotonous. For those trades in which the work is most subdivided are those in which the chief muscular strain is most certain to be taken off by machinery; and thus the chief evil of monotonous work is much diminished. As Roscher says, it is monotony of life much more than monotony of work that is to be dreaded: monotony of work is an evil of the first order only when it involves monotony of life. Now when a person's employment requires much physical exertion, he is fit for nothing after his work; and unless his mental faculties are called forth in his work, they have little chance of being developed at all. But the nervous force is not very much exhausted in the ordinary work of a factory, at all events where there is not excessive noise, and where the hours of labour are not too long. The social surroundings in the factory and out of it stimulate mental activity; and even those workers in it whose occupations are seemingly the most monotonous have much more intelligence and mental resource than has been shown by the English agricultural labourer whose employment has more variety. It is true that the American agriculturist is an able man, and that his children rise rapidly in the world. But he has had better social conditions than the English; he has always had to think for himself, and has long had to use and to repair complex machines; and the English agricultural labourer is following in his steps, and is steadily improving his position.

The textile industries.

Perhaps the textile industries afford the best instance of work that used to be done by hand and is now done by machinery. They are especially prominent in England, where they give employment to nearly half a million males

Smith tells us that "workmen, when they are liberally paid, are very apt to overwork themselves and to ruin their health and constitution in a few years. A carpenter in London, and in some other places, is not supposed to last in his utmost vigour above eight years....Almost every class of artificers is subject to some particular infirmity occasioned by excessive application to their peculiar species of work." *Wealth of Nations*, Book I. Chapter VII.

and more than half a million females, or more than one in ten of those persons who are earning independent incomes. The strain that is taken off human muscles in dealing even with those soft materials is shewn by the fact that for every one of these million operatives there is used about one horse-power of steam, that is, about ten times as much as they would themselves exert if they were all strong men; and the history of these industries will serve to remind us that many of those who perform the more monotonous parts of manufacturing work are as a rule not skilled workers who have come down to it from a higher class of work, but unskilled workers who have risen to it. A great number of those who work in the Lancashire cotton mills have come there from poverty-stricken districts of Ireland, while others are the descendants of paupers and people of weak physique, who were sent there in large numbers early in the century from the most miserable conditions of life in the poorest agricultural districts, where the labourers were fed and housed almost worse than the animals whom they tended. Again, when regret is expressed that the cotton factory hands of New England have not the high standard of culture which prevailed among them a century ago, we must remember that the descendants of those factory workers have moved up to higher and more responsible posts, and include many of the ablest and wealthiest of the citizens of America. Those who have taken their places are in the process of being raised; they are chiefly French Canadians and Irish, who though they may learn in their new homes some of the vices of civilization, are yet much better off and have on the whole better opportunities of developing the higher faculties of themselves and their children than they had in their old homes.

Most of those who do monotonous mechanical work have come to it from below not from above.

§ 7. But passing from this inquiry we must proceed to consider what are the conditions under which the economies in production arising from division of labour can best be secured. It is obvious that the efficiency of specialized machinery or specialized skill is but one condition of its economic use; the other is that sufficient work should be

Specialize skill and machinery cannot be used with full economy unless full occupation can be found

found to keep it well employed. As Babbage pointed out, in a large factory "the master manufacturer by dividing the work to be executed into different processes, each requiring different degrees of skill or force, can purchase exactly that precise quantity of both which is necessary for each process; whereas if the whole work were executed by one workman that person must possess sufficient skill to perform the most difficult and sufficient strength to execute the most laborious of the operations into which the work is divided." And it is to be noticed that the economy of production requires not only that each person should be employed constantly in a narrow range of work, but also that, when it is necessary for him to undertake different tasks, each of these tasks should be such as to call forth as much as possible of his skill and ability. Just in the same way the economy of machinery requires that a powerful turning-lathe when specially arranged for one class of work should be kept employed as long as possible on that work; and if after all it is necessary to employ it on other work, that should be such as to be worthy of the lathe, and not such as could have been done equally well by a much smaller machine.

for them at their special work.

And, in any case they should as far as possible be occupied with as difficult work as they can do.

Here then, so far as the economy of production goes, men and machines stand on much the same footing: but while machinery is a mere implement of production, man's welfare is also its ultimate aim. We have already been occupied with the question whether the human race as a whole gains by carrying to an extreme that specialization of function which causes all the most difficult work to be done by a few people: but we have now to consider it more nearly with special reference to the work of business management. The main drift of the next three chapters is to inquire what are the causes which make different forms of business management the fittest to profit by their environment, and the most likely to prevail over others; but it is well that meanwhile we should have in our minds the question, how far they are severally fitted to benefit their environment.

But man is the aim as well as the agent of production.

The inquiries immediately before us.

Many of those economies in the use of specialized skill and machinery which are commonly regarded as within the

reach of very large establishments, can be secured in a great measure by the concentration of many small businesses of a similar character in particular localities: or, as is commonly said, by the localization of industry. This subject has such important bearings on much of our future work, that it will be worth while to study it with some care.

CHAPTER X.

INDUSTRIAL ORGANIZATION CONTINUED. THE CONCENTRATION OF SPECIALIZED INDUSTRIES IN PARTICULAR LOCALITIES.

Even in early stages of civilization there has been considerable traffic in light and valuable wares, the production of which was localized.

§ 1. IN an early stage of civilization every place had to depend on its own resources for most of the heavy wares which it consumed; unless indeed it happened to have special facilities for water carriage. But the slowness with which customs changed, made it easy for producers to meet the wants of consumers with whom they had but very little communication; and it enabled comparatively poor people to buy a few expensive goods from a distance, in the security that they would add to the pleasure of festivals and holidays during a life time, or perhaps even during two or three life times. Consequently the lighter and more expensive articles of dress and personal adornment, together with spices and some kinds of metal implements used by all classes, and many other things for the special use of the rich, often came from astonishing distances. Some of these were produced only in a few places, or even only in one place; and they were diffused all over Europe partly by the agency of fairs[1] and professional pedlars, and partly by the producers themselves, who would vary their work by travelling on foot for many thousand miles to sell their goods and see the world. These sturdy travellers took on themselves the risks of their little

[1] Thus in the records of the Stourbridge Fair held near Cambridge we find an endless variety of light and precious goods from the older seats of civilization in the East and on the Mediterranean; some having been brought in Italian ships, and others having travelled by land to the Hanse Towns and thence by sea to England.

businesses; they enabled the production of certain classes of goods to be kept on the right track for satisfying the needs of purchasers far away; and they created new wants among consumers, by showing them at fairs or at their own houses new goods from a distant land[1].

This concentration of special groups of industry in particular localities, or the "localization of industry" as it is commonly called, began at an early stage in the world's history; and gradually prepared the way for many of the modern developments of division of labour in the mechanical arts and in the task of business management. Even now we find industries of a primitive fashion localized in retired villages of central Europe, and sending their simple wares even to the busiest haunts of modern industry. In Russia the expansion of a family group into a village has often been the cause of a localized industry; and there are an immense number of villages each of which carries on only one branch of production, or even only a part of one. There are for instance over 500 villages devoted to various branches of woodwork; one village makes nothing but spokes for the wheels of vehicles, another nothing but the bodies and so on; and indications of a like state of things are found in the histories of oriental civilizations and in the chronicles of mediæval Europe[2].

The various origins of localized industries; physical conditions;

§ 2. The causes by which localized industries have been originated are various. But the chief of them have been physical conditions; such as the character of the climate and the soil, of mines and quarries in the neighbourhood, or within easy access by land or water. Thus metallic industries have generally been either near mines or in places where fuel was

[1] Not very long ago travellers in Western Tyrol could find a strange and characteristic relic of this habit in a village called Imst. The villagers had somehow acquired a special art in breeding canaries: and their young men started for a tour to distant parts of Europe each with about fifty small cages hung from a pole over his shoulder, and walked on till they had sold all.

[2] Thus for instance we read (Rogers' *Six Centuries of Work and Wages*, Ch. IV.) of a lawyer's handy book written about 1250, which makes note of scarlet at Lincoln; blanket at Bligh; burnet at Beverley; russet at Colchester; linen fabrics at Shaftesbury, Lewes, and Aylsham; cord at Warwick and Bridport; knives at Marstead; needles at Wilton; razors at Leicester; soap at Coventry; horse girths at Doncaster; skins and furs at Chester and Shrewsbury and so on.

cheap. The iron industries in England first sought those districts in which charcoal was plentiful, and afterwards they went to the neighbourhood of collieries[1]. Staffordshire makes many kinds of pottery, all the materials of which are imported from a long distance; but she has cheap coal and excellent clay for making the heavy "seggars" or boxes in which the pottery is placed while being fired. Straw plaiting has its chief home in Bedfordshire, where straw has just the right proportion of silex to give strength without brittleness; and Buckinghamshire beeches have afforded the material for the Wycombe chairmaking[2]. The Sheffield cutlery trade is due chiefly to the excellent grit of which its grindstones are made.

the patronage of courts;

Another chief cause has been the patronage of a court. The rich folk there assembled make a demand for goods of specially high quality, and this attracts skilled workmen from a distance, and educates those on the spot. When an Eastern potentate changed his residence—and, partly for sanitary reasons, this was constantly done—the deserted town was apt to take refuge in the development of a specialized industry, which had owed its origin to the presence of the court. But very often the rulers deliberately invited artisans from a distance and settled them in a group together. Thus the mechanical faculty of Lancashire is said to be due to the influence of Norman smiths who were settled at Warrington by Hugo de Lupus in William the Conqueror's time[3]. While the greater part of England's manufacturing industry before the era of cotton and steam had its course directed by settlements of Flemish and Huguenot artisans; many of which were made under the immediate direction of Plantagenet and Tudor kings. These immigrants taught us how to weave woollen and worsted stuffs, though for a long time we sent our cloths to the Netherlands to be

the deliberate invitation of rulers.

[1] The later wanderings of the iron industry from Wales, Staffordshire and Shropshire to Scotland and the North of England are well shown in the tables submitted by Sir Lowthian Bell to the recent Commission on the Depression of Trade and Industry. See their Second Report, Part I. p. 320.

[2] A good account of the "localized handicrafts in the South Midland agricultural districts" is given in the Companion to the British Almanac for 1861.

[3] Smiles' *Life of Nasmyth*, p. 207.

fulled and dyed. They taught us how to cure herrings, how to manufacture silk, how to make lace, glass, and paper, and to provide for many other of our wants[1].

The industrial development of nations waits upon opportunities: but all nations have had opportunities.

But how did these immigrants learn their skill? Their ancestors had no doubt profited by the traditional arts of earlier civilizations on the shores of the Mediterranean and in the far East: for nearly all important knowledge has long deep roots stretching downwards to distant times; and so widely spread have been these roots, so ready to send up shoots of vigorous life, that there is perhaps no part of the old world in which there might not long ago have flourished many beautiful and highly skilled industries, if their growth had been favoured by the character of the people, and by their social and political institutions. This accident or that may have determined whether a particular industry flourished in any one town; the industrial character of a whole country even may have been largely influenced by the richness of her soil and her mines, and her facilities for commerce. Such natural advantages may themselves have stimulated free industry and enterprise: but it is the existence of these last, by whatever means they may have been promoted, which has been the supreme condition for the growth of noble forms of the arts of life. In sketching the history of free industry and enterprise we have already incidentally traced the outlines of the causes which have localized the industrial leadership of the world now in this country and now in that. We have seen how physical nature acts on man's energies, how he is stimulated by an invigorating climate, and how he is encouraged to bold ventures by the opening out of rich fields for his work: but we have also seen how the use he makes of these advantages depends on his ideals of life, and how inextricably therefore the religious, political and economic threads of the world's history are interwoven; while together they have been bent this way or that by great

It is determined by national character which itself is the product of many causes.

[1] Fuller says that Flemings started manufactures of cloths and fustians in Norwich, of baizes in Sudbury, of serges in Colchester and Taunton, of cloths in Kent, Gloucestershire, Worcestershire, Westmoreland, Yorkshire, Hants, Berks and Sussex, of kerseys in Devonshire and of Levant cottons in Lancashire. Smiles' *Huguenots in England and Ireland*, p. 109.

political events and the influence of the strong personalities of individuals.

The causes which determine the economic progress of nations will require further study when we come to discuss the problems of international trade[1]. But for the present we must turn aside from these broader movements of the localization of industry; and follow the fortunes of groups of skilled workers who are gathered within the narrow boundaries of a manufacturing town or a thickly peopled industrial district.

The advantages of localized industries; hereditary skill;

§ 3. When then an industry has once chosen a locality for itself, it is likely to stay there long: so great are the advantages which people following the same skilled trade get from near neighbourhood to one another. The mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously. Good work is rightly appreciated, inventions and improvements in machinery, in processes and the general organization of the business have their merits promptly discussed; if one man starts a new idea it is taken up by others and combined with suggestions of their own; and thus becomes the source of yet more new ideas.

the growth of subsidiary trades;

And subsidiary trades grow up in the neighbourhood, supplying it with implements and materials, organizing its traffic, and in many ways conducing to the economy of its material.

the use of highly specialized machinery;

Again the economic use of expensive machinery can sometimes be attained in a very high degree in a district in which there is a large aggregate production of the same kind, even though no individual capital employed in the trade be very large. For subsidiary industries devoting themselves each to one small branch of the process of production, and working it for a great many of their neighbours, are able to keep in constant use machinery of the most highly specialized character; and to make it pay its expenses, though its original cost may have been high, and its rate of depreciation very rapid.

[1] Meanwhile attention may be called to an article on *The Migrations of Centres of Industrial Energy* by Mr Courtney in the Fortnightly Review for December 1878.

a local market for special skill.

Again, in all but the earliest stages of economic development a localized industry gains a great advantage from the fact that it offers a constant market for skill. Employers are apt to resort to any place where they are likely to find a good choice of workers with the special skill which they require; while men seeking employment naturally go to places where they expect to find a good market for their skill, in consequence of the presence of many employers who require its aid. The owner of an isolated factory is often put to great shifts for want of some special skilled labour which has suddenly run short; and a skilled workman, when thrown out of employment in it, has no easy refuge. Social forces here co-operate with economic: there are often strong friendships between employers and employed; but neither side likes to feel that in case of any disagreeable incident happening between them, they must go on rubbing against one another: both sides like to be able easily to break off old associations should they become irksome. These difficulties are still very great, though they are being diminished by the railway, the printing press and the telegraph.

Sometimes however a localized industry makes too extensive demands for one kind of labour.

On the other hand a localized industry has some disadvantages as a market for labour if the work done in it is chiefly of one kind, such for instance as can be done only by strong men. In those iron districts in which there are no textile or other factories to give employment to women and children, wages are high and the cost of labour dear to the employer, while the average money earnings of each family are low. But the remedy for this evil is obvious, and is found in the growth in the same neighbourhood of industries of a supplementary character. Thus textile industries are constantly found congregated in the neighbourhood of mining and engineering industries, in some cases having been attracted by almost imperceptible steps; in others, as for instance at Barrow, having been started deliberately on a large scale in order to give variety of employment in a place where previously there had been but little demand for the work of women and children.

The advantages of variety of employment are combined with those of localized industries in some of our manufacturing

towns, and this is a chief cause of their continued growth. But on the other hand the value which the central sites of a large town have for trading purposes, enables them to command much higher ground-rents than the situations are worth for factories, even when account is taken of this combination of advantages: and there is a similar competition for dwelling space between the employés of the trading houses, and the factory workers. The result is that factories now congregate in the outskirts of large towns and in manufacturing districts in their neighbourhood rather than in the towns themselves[1].

Different industries in the same neighbourhood mitigate each other's depressions.

A district which is dependent chiefly on one industry is liable to extreme depression, in case of a falling off in the demand for its produce, or of a failure in the supply of the raw material which it uses. This evil again is in a great measure avoided by those large towns, or large industrial districts in which several distinct industries are strongly developed. If one of them fails for a time, the others are likely to support it in many ways, chiefly indirect; one of these being that they keep in heart the local shopkeepers, who are thus enabled to continue their assistance longer than they otherwise could, to the work-people in those trades that happen to be depressed.

The influence of improved means of communication on the geographical distribution of industries.

§ 4. Every cheapening of the means of communication, every new facility for the free interchange of ideas between distant places alters the action of the forces which tend to localize industries. Speaking generally we may say that a lowering of tariffs, or of freights for the transport of goods, tends to make each locality buy more largely from a distance what it requires; and thus tends to concentrate particular industries in special localities: but on the other hand every thing that increases people's readiness to migrate from one place to another, tends to bring skilled artisans to ply their crafts near to the consumers who will

[1] The movement has been specially conspicuous in the case of the textile manufactures. Manchester, Leeds and Lyons are still chief centres of the trade in cotton, woollen and silk stuffs, but they do not now themselves produce any great part of the goods to which they owe their chief fame. On the other hand London and Paris retain their positions as the two largest manufacturing towns of the world, Philadelphia coming third.

purchase their wares. These two opposing tendencies are well illustrated by the recent history of the English people.

Illustration from the recent history of England.

On the one hand the steady cheapening of freights, the opening of railways from the agricultural districts of America and India to the sea-board, and the adoption by England of a free-trade policy, have led to a great increase in her importation of raw produce. But on the other hand the growing cheapness, rapidity and comfort of foreign travel, are inducing her trained business men and her skilled artisans to pioneer the way for new industries in other lands, and to help them to manufacture for themselves goods which they have been wont to buy from England. English mechanics have taught people in almost every part of the world how to use English machinery, and even how to make the machinery like it; and English miners have opened out mines of ore which have diminished the foreign demand for many of England's products[1].

The effects on her agriculture of increased importation of raw produce.

One of the most striking movements towards the specialization of a country's industries, which history records, is the rapid increase of the non-agricultural population of England in recent times. The exact nature of this change is however liable to be misunderstood; and its interest is so great, both for its own sake, and on account of the illustrations it affords of the general principles which we have been discussing in the preceding chapter and in this, that we may with advantage pause here to consider it a little.

The diminution of her agricultural population is less than at first sight appears.

In the first place the real diminution of England's agricultural industries is not so great as at first sight appears. It is true that in the middle ages three fourths of the people were reckoned as agriculturists; that only one in nine was returned to the last census as engaged in agriculture, and that perhaps not more than one in twelve will be so returned at the next census. But it must be remembered that the so-called agricultural population of the middle ages were not exclusively occupied with agriculture; they did for them-

[1] The high intelligence of the Cornish men has combined with the comparative poverty of their own mines to make them take the lead in this movement: and they even send to England from distant continents parts of the tin and copper which enter into many of her most valuable exports; and thus in some ways increase the specialization of her industries.

selves a great part of the work that is now done by brewers and bakers, by spinners and weavers, by bricklayers and carpenters, by dressmakers and tailors and by many other trades. These self-sufficing habits died slowly; but most of them had nearly disappeared by the beginning of this century; and it is probable that the labour spent on the land at this time was not much less a part of the whole industry of the country than in the middle ages: for, in spite of her ceasing to export wool and wheat, there was so great an increase in the produce forced from her soil, that the rapid improvement in the arts of her agriculturists scarcely availed to hold in check this action of the law of Diminishing Return. But gradually a great deal of labour has been diverted from the fields to making expensive machinery for agricultural purposes. This change did not exert its full influence upon the numbers of those who were reckoned as agriculturists so long as the machinery was drawn by horses: for the work of tending them and supplying them with food was regarded as agricultural. But in recent years a rapid growth of the use of steam power in the fields has coincided with the increased importation of farm produce. The coal-miners who supply these steam-engines with fuel, and the mechanics who make them and manage them in the fields are not reckoned as occupied on the land, though the ultimate aim of their labour is to promote its cultivation. The real diminution then of England's agriculture is not so great as at first sight appears; but there has been a change in its distribution.

Changes in the distribution of the agricultural population within the country.

Attention has already been called to the influence which the importation of agricultural produce exerts in altering the relative values of different soils: those falling most in value which depended chiefly on their wheat crops, and which were not naturally fertile, though they were capable of being made to yield fairly good crops by expensive methods of cultivation. These districts have contributed more than their share to the crowds of agricultural labourers who have migrated to the large towns; and thus the geographical distribution of industries within the country has been still further altered. A striking instance of the influence of the new means of transport is seen in those pastoral districts in the remoter parts of

the United Kingdom, which send dairy products by special express trains to London and other large towns, meanwhile drawing their own supplies of wheat from the further shores of the Atlantic or even the Pacific Ocean.

Those set free from agriculture have gone not to manufactures

But next the changes of recent years have not, as would at first sight appear probable, increased the proportion of the English people who are occupied in manufactures. The output of England's manufactures is certainly several times as great now as it was at the middle of the century; but those occupied in manufacture of every kind were not a larger percentage of the population in 1881 than in 1851[1]. This result is the more strange when we recollect that among the manufacturers are reckoned those who make the machinery and implements which do so great a part of the work of English agriculture.

but chiefly to industries in which there has been no great increase in the efficiency of labour.

The chief explanation of this result lies in the wonderful increase in recent years of the power of machinery. This has enabled us to produce ever increasing supplies of manufactures of almost every kind both for our own use and for exportation without requiring any considerable increase in the number of people who tend the machines. And therefore we have been able to devote the labour set free from agriculture chiefly to supplying those wants in regard to which the improvements of machinery help us but little: the efficiency of machinery has prevented the industries localized in England from becoming as exclusively mechanical as they otherwise would. Prominent among the occupations which have increased since 1851 in England at the expense of agriculture are education, domestic service, building, dealing and transport by road[2]. In none of these is very much

[1] Mr Booth in his admirable paper *On occupations in the United Kingdom* 1801—1881, published in the Statistical Journal for 1886, separates as well as he can the dealers from the manufacturers; and finds that those engaged in manufacture were 32·7 per cent. of those earning independent incomes in 1851 and only 30·7 per cent. in 1881.

[2] Of course transport by railway, which is a mechanical industry, occupies more people than it did; for it is only of recent origin. But the shipping industry is of old date; and there we find that recent mechanical improvements have enabled a traffic increased fourfold to be carried without any increase in the number of those who work it. Except in the matter of tramways there has been no considerable improvement in the vehicles used on the roads, and a comparatively slight increase in traffic by road has caused those who work it to

direct help got from new inventions: man's labour is not much more efficient in them now than it was a century ago: and therefore if the wants for which they make provision increase in proportion to our general wealth, it is only to be expected that they should absorb a constantly growing proportion of our industry.

Transition to the subject of the next chapter.

Passing away from this illustration of the action of modern forces on the geographical distribution of industries, we will resume our inquiry as to how far the full economies of division of labour can be obtained by the concentration of large numbers of small businesses of a similar kind in the same locality; and how far they are attainable only by the aggregation of a large part of the business of the country into the hands of a comparatively small number of rich and powerful firms, or, as is commonly said, by production on a large scale.

increase in numbers faster than those engaged in almost any other manual occupation.

CHAPTER XI.

INDUSTRIAL ORGANIZATION, CONTINUED. PRODUCTION ON A LARGE SCALE.

The typical industries for our present purpose are those engaged in manufacture.

§ 1. THE advantages of production on a large scale are best shown in manufacture[1]; under which head we may include all businesses engaged in working up material into forms in which it will be adapted for sale in distant markets: the characteristic of manufacturing industries which makes them offer generally the best illustrations of the advantages of production on a large scale, is their power of choosing freely the locality in which they will do their work. They are thus contrasted on the one hand with agriculture and other extractive industries, (mining, quarrying, fishing etc.), the geographical distribution of which is determined by nature; and on the other hand with industries that make or repair things to suit the special needs of individual consumers, from whom they cannot be far removed, at all events without great loss.

The economy of material.

The chief advantages of production on a large scale are economy of skill, economy of machinery and economy of materials: but the last of these is rapidly losing importance relatively to the other two. It is true that an isolated workman often throws away a number of small things which would have been collected and turned to good account in a factory[2]; but waste of this kind can scarcely occur in a

[1] "Manufacture" is a term which has long lost any connection with its original use: and is now applied to those branches of production where machine and not hand work is most prominent. Roscher made the attempt to bring it back nearer to its old use by applying it to domestic as opposed to factory industries: but it is too late to do this now.

[2] See Babbage's instance of the manufacture of horn. *Economy of Manufactures*, ch. XXII.

localized manufacture even if it is in the hands of small men; and there is not very much of it in any branch of industry in modern England, except perhaps in agriculture and in domestic cooking. No doubt many of the most important advances of recent years have been due to the utilizing of what had been a waste product[1]; but this has been generally due to a distinct invention, either chemical or mechanical, the use of which has been indeed promoted by minute subdivision of labour, but has not been directly dependent on it. Again it is true that when a hundred suits of furniture, or of clothing, have to be cut out on exactly the same pattern, it is worth while to spend great care on so planning the cutting out of the boards or the cloth, that only a few small pieces are wasted. But this is properly an economy of skill; one planning is made to suffice for many tasks, and therefore can be done well and carefully. We may pass then to the economy of machinery.

The advantages of a large factory as regards the use of specialized machinery.

§ 2. In spite of the aid which subsidiary industries can give to small manufactures, where many in the same branch of trade are collected in one neighbourhood[2], they are still placed under a great disadvantage by the growing variety and expensiveness of machinery. For in a large establishment there are often many expensive machines each made specially for one small use. Each of them requires space in a good light, and thus stands for something considerable in the rent and general expenses of the factory; and independently of interest and the expense of keeping it in repair a heavy allowance must be made for depreciation in consequence of its being probably improved upon before long[3]. A small manufacturer must therefore have many

[1] Instances are the utilization of the waste from cotton, wool, silk and other textile materials; and of the bye products in the metallurgical industries and in the manufacture of soda and gas.

[2] See the preceding chapter, § 3.

[3] The average time which a machine will last before being superseded is in many trades not more than fifteen years, while in some it is ten years or even less; there is often a loss on the use of a machine unless it earns every year twenty per cent. on its cost. When therefore the operation performed by a machine costing £500 adds only a hundredth part to the value of the material that passes through it—and this is not an extreme case—there will be a loss on its use unless it can be applied in producing at least £10,000 worth of goods annually.

things done by hand or by imperfect machinery, though he knows how to have them done better and cheaper by special machinery, if only he could find constant employment for it.

Advantages with regard to the invention of improved machinery.

But next, a small manufacturer may not always be acquainted with the best machinery for his purpose. It is true that if the industry in which he is engaged has been long established on a large scale, his machinery will be well up to the mark, provided he can afford to buy the best in the market. In agriculture and the cotton industries for instance, improvements in machinery are devised almost exclusively by machine makers, and are accessible to all, at any rate on paying a royalty for patent right. But this is not the case in industries that are as yet in an early stage of development or are rapidly changing their form; such as the chemical industries, the watchmaking industry and some branches of the jute and silk manufactures; and in a host of trades that are constantly springing up to supply some new want or to work up some new material.

The small manufacturer cannot often afford to experiment.

In all such trades new machinery and new processes are for the greater part devised by manufacturers for their own use. Each new departure is an experiment which may fail; those which succeed must pay for themselves and for the failure of others; and though a small manufacturer may think he sees his way to an improvement, he must reckon on having to work it out tentatively, at considerable risk and expense and with much interruption to his other work; and even if he should be able to perfect it, he is not likely to be able to make the most of it. For instance, he may have devised a new speciality, which would get a large sale if it could be brought under general notice: but to do this would perhaps cost many thousand pounds; and if so he will probably have to turn his back on it. For it is almost impossible for him to discharge, what Roscher calls the characteristic task of the modern manufacturer, that of creating new wants by showing people something which they had never thought of having before; but which they want to have as soon as the notion is suggested to them. In the pottery trade for example the small manufacturer cannot afford even to make experiments with new patterns and designs except in a very tentative

way. His chance is better with regard to an improvement in making things for which there is already a good market. But even here he cannot get the full benefit of his invention unless he patents it[1]; and sells the right to use it; or borrows some capital and extends his business; or lastly changes the character of his business and devotes his capital to that particular stage of the manufacture to which his improvement applies. But after all such cases are exceptional: the growth of machinery in variety and expensiveness presses hard on the small manufacturer everywhere. It has already driven him completely out of some trades and is fast driving him out of others.

But in some trades a factory of moderate size can have the best machinery.

There are however some trades in which the advantages which a large factory derives from the economy of machinery almost vanish as soon as a moderate size has been reached. For instance in cotton spinning, and calico weaving, a comparatively small factory will hold its own and give constant employment to the best known machines for every process: so that a large factory is only several parallel smaller factories under one roof; and indeed some cotton spinners when enlarging their works think it best to add a weaving department. In such cases the large business gains little or no economy in machinery; but even then it generally saves something in building, particularly as regards chimneys, and in the economy of steam power, and in the management and

[1] In many businesses only a small percentage of improvements are patented. They consist of many small steps, which it would not be worth while to patent one at a time. Or their chief point lies in noticing that a certain thing ought to be done; and to patent one way of doing it, is only to set other people to work to find out other ways of doing it against which the patent cannot guard. If one patent is taken out, it is often necessary to "block" it, by patenting other methods of arriving at the same result; the patentee does not expect to use them himself, but he wants to prevent others from using them. All this involves worry and loss of time and money: and the large manufacturer prefers to keep his improvement to himself and get what benefit he can by using it. While if the small manufacturer takes out a patent, he is likely to be harassed by infringements: and even though he may win "with costs" the actions in which he tries to defend himself, he is sure to be ruined by them if there are many of them. It is generally in the public interest that an improvement should be published, even though it is at the same time patented. But if it is patented in England and not in other countries, as is often the case, English manufacturers may not use it, even though they were just on the point of finding it out for themselves before it was patented; while foreign manufacturers learn all about it and can use it freely.

repairs of engines and machinery[1]. Large works even though they produce nothing but soft goods, have generally well organized carpenters' and mechanics' shops, which not only diminish the cost of repairs, but have the important advantage of preventing delays from accidents to the plant.

Advantages of a large factory in buying and selling.

Akin to these last, there are a great many advantages which a large factory, or indeed a large business of almost any kind, nearly always has over a small one. A large business buys in great quantities and therefore cheaply; it pays low freights and saves on carriage in many ways, particularly if it has a railway siding. It often sells in large quantities, and thus saves itself trouble; and yet at the same time it gets a good price, because it offers conveniences to the customer by having a large stock from which he can select and at once fill up a varied order; while its reputation gives him confidence. It can spend large sums on advertising by commercial travellers and in other ways; its agents give it trustworthy information on trade and personal matters in distant places, and its own goods advertise one another.

Alliance between large traders and small producers.

Many of these economies in the matter of buying and selling can be secured by a large trading house, which puts out its work to be done by small manufacturers or by work-people at their own homes. So far therefore they do not tell in the direction of destroying small manufacturers, but rather of limiting the character of the work of business management done by them; as we shall see more fully in the next chapter.

Advantages of a large factory

§ 3. Next, with regard to the economy of skill. Everything that has been said with regard to the advantages which a large establishment has in being able to afford

[1] It is a remarkable fact that cotton and some other textile factories form an exception to the general rule that the capital required per head of the workers is generally greater in a large factory than in a small one. The reason is that in most other businesses the large factory has many things done by expensive machines which are done by hand in a small factory; so that while the wages bill is less in proportion to the output in a large factory than in a small one, the value of the machinery and the factory space occupied by the machinery is much greater. But in the simpler branches of the textile trades, small works have the same machinery as large works have; and since small steam engines, &c. are proportionately more expensive than large ones, they require a greater fixed capital in proportion to their output than larger factories do; and they are likely to require a floating capital also rather greater in proportion.

as regards specialized skill,

highly specialized machinery applies equally with regard to highly specialized skill. It can contrive to keep each of its employés constantly engaged in the most difficult work of which he is capable, and yet so to narrow the range of his work that he can attain this facility and excellence which come from long continued practice. But enough has already been said on the advantage of division of labour: and we may pass to an important though indirect advantage which a manufacturer derives from having a great many men in his employment.

and in having a large selection of men for work which requires great ability,

The large manufacturer has a much better chance than a small one has, of getting hold of men with exceptional natural abilities, to do the most difficult part of his work—that on which the reputation of his establishment chiefly depends. This is occasionally important as regards mere handiwork in trades which require much taste and originality, as for instance that of a house decorator, and in those which require exceptionally fine workmanship, as for instance that of a manufacturer of delicate mechanism[1]. But in most businesses its chief importance lies in the facilities which it gives to the employer for the selection of able and tried men, men whom he trusts and who trust him, to be his foremen and heads of departments. We are thus brought to the central problem of the modern organization of industry, viz. that which relates to the advantages and disadvantages of the subdivision of the work of business management.

especially that of foremen, &c.

The subdivision of the work of business manage-

§ 4. The head of a large business can reserve all his strength for the broadest and most fundamental problems of his trade: he must indeed assure himself that his managers, clerks and foremen are the right men for their work, and are

[1] Thus Boulton writing in 1770 when he had 700 or 800 persons employed as metallic artists and workers in tortoiseshell, stones, glass, and enamel, says:—"I have trained up many, and am training up more, plain country lads into good workmen; and wherever I find indications of skill and ability, I encourage them. I have likewise established correspondence with almost every mercantile town in Europe, and am thus regularly supplied with orders for the grosser articles in common demand, by which I am enabled to employ such a number of hands as to provide me with an ample choice of artists for the finer branches of work: and I am thus encouraged to erect and employ a more extensive apparatus than it would be prudent to employ for the production of the finer articles only." Smiles' *Life of Boulton*, p. 128.

doing their work well; but beyond this he need not trouble himself much about details. He can keep his mind fresh and clear for thinking out the most difficult and vital problems of his business; for studying the broader movements of the markets, the yet undeveloped results of current events at home and abroad; and for contriving how to improve the organization of the internal and external relations of his business.

ment: the large manufacturer can give his whole strength to the most important parts of it.

For much of this work the small employer has not the time if he has the ability; he cannot take so broad a survey of his trade, or look so far ahead; he must often be content to follow the lead of others. And yet he must spend much of his time on work that is below him; for if he is to succeed at all, he must have a good deal of originating and organizing force; his mind must be in some respects of a high quality; and his strength is wasted when he occupies himself, as he must do to a great extent, with easy but tedious routine work.

On the other hand the small employer has great advantages of his own. The master's eye is everywhere; there is no shirking by his foremen or workmen. Again by keeping things himself under lock and key, and in other ways, he can save much of the book-keeping, and nearly all of the cumbrous system of checks that are necessary in the business of a large firm. The gain from this source is of very great importance in trades which use the more valuable metals and other expensive materials.

Advantages of the small manufacturer in the detailed work of superintendence.

And though he must always remain at a great disadvantage in getting information and in making experiments; yet in this matter the general course of progress is on his side. For newspapers, and trade and technical publications of all kinds are perpetually scouting for him and bringing him much of the knowledge he wants—knowledge which a little while ago would have been beyond the reach of anyone who could not afford to have well-paid agents in many distant parts. Again it is to his interest also that the secresy of business is on the whole diminishing, and that the most important improvements in method seldom remain secret for long after they have passed from

Modern developments of knowledge act in a great measure on his side.

the experimental stage. It is to his advantage that changes in manufacture depend less on mere rules of thumb and more on broad developments of scientific principle; and that many of these are made by students in the pursuit of knowledge for its own sake, and are promptly published in the general interest. Although therefore the small manufacturer can seldom be in the front of the race of progress, he need not be far from it, if he has the time and the ability for availing himself of the modern facilities for obtaining knowledge. But it is true that he must be exceptionally strong if he can do this without neglecting the minor but necessary details of the business.

On the whole then the small factory can seldom compete on equal terms with a larger establishment which is organized on the ideally best plan. But as a rule a large business is itself only the development of a smaller one which has prospered under good management: after a time the management becomes incompetent, or for some other reason the business is broken up; and again the cycle is renewed by other small businesses pushing their way upwards. But this point must be further considered in the next chapter.

Advantages of large businesses of other kinds.

§ 5. The advantages which a large business has over a small one are conspicuous in manufacture, because, as we have noticed, it has special facilities for concentrating a great deal of work in a small area. But there is a strong tendency for large establishments to drive out small ones in many other industries. In particular the retail trade is being transformed, the small shopkeeper is losing ground daily.

In retail trade they are on the increase

Let us look at the advantages which a large retail shop or store has in competing with its smaller neighbours. To begin with, it can obviously buy on better terms, it can get its goods carried more cheaply, and can offer a larger variety to meet the taste of customers. Next it has a great economy of skill: the small shopkeeper, like the small manufacturer, must spend much of his time in routine work that requires no judgment: whereas the head of a large establishment, and even in some cases his chief assistants, spend their whole time in using their judgment. Until lately these advantages

have been generally outweighed by the greater facilities which the small shopkeeper has for bringing his goods to the door of his customers, for humouring their several tastes and for knowing enough of them individually to be able safely to lend them capital, in the form of selling them goods on credit.

owing to the growth of cash payments

But within recent years there have been many changes all telling on the side of large establishments. The habit of buying on credit is passing away; and the personal relations between shopkeeper and customer are becoming more distant. The first change is a great step forwards; the second is on some accounts to be regretted, but not on all: for it is partly due to the fact that the increase of true self-respect among the wealthier classes is making them no longer care for the subservient personal attentions they used to require. Again the growing value of time makes people less willing than they were to spend several hours in shopping; they now often prefer to spend a few minutes in writing out a long list of orders from a varied and detailed price list; and this they are enabled to do easily by the growing facilities for ordering and receiving parcels by post and in other ways. All these changes render it more difficult than it was for the small shopkeeper to hold his own even in the provision trade, and others in which no great variety of stock is required.

and the increasing variety of the goods in common demand.

But in many trades the ever-growing variety of commodities, and those rapid changes of fashion which now extend their baneful influence through almost every rank of society, weight the balance even more heavily against the small dealer, for he cannot keep a sufficient stock to offer much variety of choice, and if he tries to follow any movement of fashion closely, a larger proportion of his stock will be left stranded by the receding tide than in the case of a large shopkeeper. Again in some branches of the clothing and furniture and other trades the increasing cheapness of machine-made goods is leading people to buy ready-made things from a large store instead of having them made to order by some small maker and dealer in their neighbourhood. Again, the large shopkeeper, not content with receiving travellers

from the manufacturers, makes tours either himself or by his agent in the most important manufacturing districts at home and abroad; and he thus dispenses almost entirely with middlemen between him and the manufacturer. On the other hand in some branches of the textile trades, the ease with which large packets of patterns are distributed by manufacturers and warehousemen, is telling perceptibly on the side of the small shopkeepers[1].

The decay of the small shopkeeper is a matter of great social importance.

The small shopkeeper seems likely always to retain some hold of the repairing trades; and he keeps his own fairly well in the sale of perishable food[2] especially to the working classes, partly in consequence of his being able to sell goods on credit and to collect the small debts due for them. But on the whole he is losing ground rapidly. The decay of the small manufacturer appeared to the economists in the first half of the century as one of the chief causes that were changing the character of England's industrial and social life: the decay of the small shopkeeper seems to be a more potent influence just at the present time. And it is noteworthy that those small shopkeepers who are holding their own best, are also as a rule producers on a small scale, and *vice versa*.

§ 6. We may next consider those industries whose geographical position is determined by the nature of their work.

The carrying trades.

Country carriers and a few cabmen are almost the only survivals of small industry in the carrying trade; and American experience causes some doubt as to how long cabs will remain in general use. Railways and tramways are constantly increasing in size, and the capital required to work them is increasing at an even greater rate. The growing intricacy and variety of commerce is adding to the advantages which a large fleet of ships under one manage-

[1] A tailor with moderate capital shows his customers specimens of many hundreds of the newest cloths, and perhaps orders by telegraph the selected cloth to be sent by parcels' post. Again, ladies often buy their materials direct from the manufacturer, and get them made up by dressmakers who have scarcely any capital.

[2] But the large business of the Aerated Bread Company and others of a like kind in London is probably the forerunner of many similar movements.

ment derives from its power of delivering goods promptly, and without breach of responsibility, in many different ports; and as regards the vessels themselves time is on the side of large ships, especially in the passenger trade[1]. As a consequence the arguments in favour of the State undertaking business are stronger in some branches of the carrying trade than in any other except the allied undertakings of carrying away refuse, and bringing in water, gas, &c.[2]

Mines and quarries.

The contest between large and small mines and quarries has not so clearly marked a tendency. The history of the State management of mines is full of very dark shadows; for the business of mining depends too much on the probity of its managers and their energy and judgment in matters of detail as well as of general principle, to be well managed by State officials: and for the same reason the small mine or quarry may fairly be expected, other things being equal, to hold its own against the large one. But in some cases the cost of deep shafts, of machinery and of establishing means of communication, are too great to be borne by any but a very large business[3].

Agricul-

§ 7. In agriculture there is not much division of labour,

[1] A ship's carrying power varies as the cube of her dimensions, while the resistance offered by the water increases only a little faster than the square of her dimensions; so that a large ship requires less coal in proportion to its tonnage than a small one. It also requires less labour, especially that of navigation: while to passengers it offers greater safety and comfort, more choice of company and better professional attendance. In short the small ship has no chance of competing with the large ship between ports, which large ships can easily enter, and between which the traffic is sufficient to enable them to fill up quickly.

[2] It is characteristic of the great economic change of the last half century that when the first railway bills were passed, provision was made for allowing private individuals to run their own conveyances on them, just as they do on a highway or a canal; and now we find it difficult to imagine how people could have expected, as they certainly did, that this plan would prove a practicable one.

[3] While the output of coal in this country is increasing, the number of mines is diminishing: but this is partly due to the closing of many of the new mines which were hastily opened some years ago when the price of coal was very high. The contests between the large and small methods of production has led to interesting episodes in the African diamond mines and the American oil regions. The Sutro tunnel and the American oil ducts are good instances of the way in which a provision may be made for the joint use of a number of mines, which no one of them could afford separately; but they also show how this course gives openings for the formation of powerful monopolies.

ture has conditions peculiar to itself.

and there is no production on a very large scale[1]. This is partly due to natural causes; to the changes of the seasons and to the difficulty of concentrating a great deal of labour in any one place. Nevertheless agriculture has recently moved somewhat in the direction of the methods of manufacture and may perhaps go much further; machine work is pushing out hand work in all directions; and in Great Britain at least steam power is pushing out horse power[2]. A well equipped farm has, as we have seen, a great many expensive machines, for most of which a small farmer can find employment during only a very short time. He may hire some of them from people who make it their business to undertake steam ploughing and thrashing; but there are many of which he can get the use only by co-operation with his neighbours; and the uncertainties of the weather prevent this plan from working very smoothly in practice.

It requires a constantly increasing knowledge, and this increases the economies to be got by highly organized methods of management.

Again, agriculture requires ever more and more knowledge: to keep abreast of the changes of the day, the farmer must go beyond the results of his own and his father's experience. He must be able to enter into the movements of agricultural science, or at least to follow them closely enough to see their chief practical applications to the case of his own farm; and to do this properly requires a trained and versatile mind. A farmer who has these qualities could find time to direct the general course of the management of several hundred, or even of several thousand acres; the mere superintendence of his men's work in matters of detail is not a task fitting for him; the work which he ought to do, is as difficult as that of a large manufacturer, who would never dream of spending his own strength on minute supervision which he can easily hire subordinates to do; a farmer who can do this properly, must be wasting his strength on work that is beneath him, unless he employs many gangs of workmen each of them under a responsible

[1] A so-called "large farm" does not employ a tenth part of the labour which is collected in a factory of moderate dimensions.

[2] Horse power is dearer relatively to both steam power and hand power in England than in most other countries. England has taken the lead in the improvement of field steam machinery and America in that of horse machinery and hand improvements.

foreman. But there are not many farms which give scope for this, and there is therefore very little inducement for really able men to enter the business of farming; the best enterprise and ability of the country generally avoid agriculture and go to trades in which there is room for a man of first-rate ability to do nothing but high class work, to do a great deal of it, and therefore to get high earnings of management. This however is a subject to which we shall have to return when we come to consider the problem of agricultural rent in relation to land tenure.

The experiment of working farms on a very large scale is difficult and expensive, because to be tried properly it would require farm buildings and means of communication specially adapted to it; and it would have to overcome a good deal of resistance from custom and sentiment not altogether of an unhealthy kind. The risk also would be great; for in such cases those who pioneer often fail, though their route when well trodden may be found to be the easiest and best[1].

Another economic plan is that of rather small farms in the work of which the farmer and his wife take some share.

If it be assumed, as is the modern fashion, that the farmer is not to work habitually with his men and to encourage them by his presence, it seems best for the economy of production that farms should be as large as is practicable under the existing condition of land tenure; so as to give room for the use of highly specialized machines and for the exercise of great ability on the part of the farmer. But if a farm is not very large, and if, as is often the case, the farmer has no greater ability and activity of mind than is commonly to be found among the better class of working foremen in manufactures, then it would be best for others, and in the long run for himself, that he should return to the old plan of working among his men.

[1] Our knowledge on many disputed points would be much increased and valuable guidance gained for the future if some private persons, or joint stock companies, or co-operative associations, would make a few careful experiments of what have been called "Factory farms". On this plan there would be a central set of buildings (there might be more than one) from which roads and even light tramways extended in all directions. In these buildings the recognized principles of factory management would be applied, machinery would be specialized and economized, waste of material would be avoided, bye products would be utilized, and above all the best skill and managing power would be employed, but only for its proper work.

Perhaps also his wife might return to some of those lighter tasks in and near the farmhouse which tradition ascribes to her. They require discretion and judgment, they are not inconsistent with education and culture; and combined with it they would raise and not lower the tone of her life, and her real claims to a good social position. There is some reason for thinking that the stern action of the principle of natural selection is now displacing those farmers, who have not the faculty to do difficult head-work, and yet decline to do hand-work. Their places are being taken by men of more than average natural ability who are with the help of modern education rising from the ranks of labourers; who are quite able to manage the ordinary routine work of a model farm; and who are giving to it a new life and spirit by calling their men to come and work, instead of telling them to go and work. Very large farms being left out of view, it is with rather small farms worked on these principles that the immediate future of English agriculture seems to lie.

Very small holdings.

Very small holdings however have great advantages wherever so much care has to be given to individual plants, that machinery is out of place. There is reason for hoping that they will continue to hold their own in raising vegetables, flowers and fruit. But many of the special advantages of very small holdings depend on the mode of tenure of the land; and we must therefore defer the further discussion of this point.

CHAPTER XII.

INDUSTRIAL ORGANIZATION, CONTINUED. BUSINESS MANAGEMENT.

Business management has many forms.

§ 1. BUSINESS may be taken to include all provision for the wants of others which is made in the expectation of payment direct or indirect from those who are to be benefitted. It is thus contrasted with the provision for our own wants which each of us makes for himself, and with those kindly services which are prompted by family affection and the desire to promote the well-being of others. Business management or undertaking has always had many different forms, and their number and variety was never so great as in England now. Relics remain of almost every form that has ever been in use; while new forms are constantly being developed.

The primitive handicraftsman dealt directly with the consumer;

The primitive handicraftsman managed his whole business for himself; but since his customers were with few exceptions his immediate neighbours, since he required very little capital, since the plan of production was arranged for him by custom, and since he had no labour to superintend outside of his own household, these tasks did not involve any very great mental strain. He was far from enjoying unbroken prosperity; war and scarcity were constantly pressing on him and his neighbours, hindering his work and stopping their demand for his wares. But he was inclined to take good and evil fortune, like sunshine and rain, as things beyond his control: his fingers worked on, but his brain was seldom weary.

Even in modern England we find now and then a village artisan who adheres to primitive methods, and makes things

on his own account for sale to his neighbours; managing his own business and undertaking all its risks. But such cases are rare: the most striking instances of an adherence to old-fashioned methods of business are supplied by the learned professions; for a physician or a solicitor manages as a rule his own business and does all its work. This plan is not without its disadvantages: much valuable activity is wasted or turned to but slight account by some professional men of first-rate ability, who have not the special aptitude required for obtaining a business connection; they would be better paid, would lead happier lives, and would do more good service for the world if their work could be arranged for them by some sort of a middleman. But yet on the whole things are probably best as they are: there are sound reasons behind the popular instinct which distrusts the intrusion of the middleman in the supply of those services which require the highest and most delicate mental qualities, and which can have their full value only where there is complete personal confidence.

and so do as a rule the learned professions now.

English solicitors however act, if not as employers or undertakers, yet as agents for hiring that branch of the legal profession which ranks highest, and whose work involves the hardest mental strain. Again many of the best instructors of youths sell their services, not directly to the consumer, but to the governing body of a college or school, or to a head master, who arranges for their purchase: the employer supplies to the teacher a market for his labour; and is supposed to give to the purchaser, who may not be a good judge himself, some sort of guarantee as to the quality of the teaching supplied.

But there are exceptions even here;

Again, artists of every kind, however eminent, often find it to their advantage to employ some one else to arrange for them with customers; while those of less established repute are sometimes dependent for their living on capitalist traders, who are not themselves artists, but who understand how to sell artistic work to the best advantage.

§ 2. But we have already seen how unsuitable the primitive pattern is for the greater part of the business of the modern world. The task of directing production so that a given effort may be most effective in supplying

and in most businesses the services of a special class of

human wants is so difficult under the complex conditions of modern life, that it has to be broken up and given into the hands of a specialized body of employers, or to use a more general term, of business men; who "adventure" or "undertake" its risks; who bring together the capital and the labour required for the work; who arrange or "engineer" its general plan, and who superintend its minor details. Looking at business men from one point of view we may regard them as a highly skilled industrial grade, from another as middlemen intervening between the manual worker and the consumer.

undertakers intervene.

There are some kinds of business men who undertake great risks, and exercise a large influence over the welfare both of the producers and of the consumers of the wares in which they deal, but who are not to any considerable extent direct employers of labour. The extreme type of these is the dealer on the stock exchange or the produce markets, whose daily purchases and sales are of vast dimensions, and who yet has neither factory nor warehouse, but at most an office with a few clerks in it. The good and the evil effects of the action of speculators such as these are however so complex themselves, and are so intimately interwoven with fluctuations of commercial credit and the changes of the money market that they cannot be conveniently discussed in this place. It is true that there is an element of speculation in almost every kind of business: but in this early stage of our inquiry it is best that we should give our chief attention to those forms of business in which administration counts for most and the subtler forms of speculation for least. Let us then take some illustrations of the more common types of business, and watch the relations in which the undertaking of risks stands to the rest of the work of the business man.

Some of them are not employers at all;

but we will concern ourselves at present chiefly with those who are.

§ 3. The building trade will serve our purpose well, partly because it adheres in some respects to primitive methods of business. Late in the Middle Ages it was quite common for a private person to build a house for himself without the aid of a master builder; and the habit is not even now altogether extinct. A person who undertakes his own building must hire separately all his workmen, he must watch their work

Illustration from house-building.

It is even now sometimes managed by private persons.

and check their demands for payment; he must buy his materials from many quarters, and he must dispense with the use of expensive machinery unless he happens to be able to hire it. In the result he probably pays more than the current wages; but as others gain what he loses, there is no resultant waste so far. There is however great waste in the time he spends in bargaining with the men and testing and directing their work by his imperfect knowledge; and again in the time that he spends in finding out what kinds and quantities he wants of different materials, and where to get them best, and so on. This waste is avoided by that division of labour which assigns to the professional builder the task of superintending details, and to the professional architect the task of drawing plans.

The chief risks of undertaking sometimes separated from the work of detailed management and superintendence in the building trades;

The division of labour is often carried still further when houses are built not at the expense of those who are to live in them, but as a building speculation. When this is done on a large scale, as for instance in opening out a new suburb, the stakes at issue are so large as to offer an attractive field to powerful capitalists with a very high order of general business ability, but perhaps with not much technical knowledge of the building trade. They rely on their own judgment for the decision as to what are likely to be the coming relations of demand and supply for different kinds of houses; but they intrust to others the management of details. They employ architects and surveyors to make plans in accordance with their general directions; and then enter into contracts with professional builders for carrying them out. But they themselves undertake the chief risks of the business, and control its general direction.

in the textile trades;

§ 4. We have already seen[1] how this division of responsibility prevailed in the woollen trade just before the beginning of the era of large factories: the more speculative work and the broader risks of buying and selling being taken over by the undertakers, who were not themselves employers of labour; while the detailed work of superintendence and the narrower risks of carrying out definite contracts were handed over to small masters. This plan is still exten-

[1] Book I. Ch. III. § 4.

sively followed in some branches of the textile trades, especially those in which the difficulty of forecasting the future is very great. Manchester warehousemen give themselves to studying the movements of fashion, the markets for raw materials, the general state of trade, of the money market, and of politics, and all other causes that are likely to influence the prices of different kinds of goods during the coming season; and after employing, if necessary, skilled designers to carry out their ideas (just as the building speculator in the previous case employed architects), give out to manufacturers in different parts of the world contracts for making the goods on which they have determined to risk their capital.

in the shipping trade;

Again, the foreign merchant very often has no ships of his own, but gives his mind to studying the course of trade, and undertakes himself its chief risks; while he gets his carrying done for him by men who require more administrative ability, but need not have the same power of forecasting the subtler movements of trade; though it is true that as purchasers of ships they have great and difficult trade risks of their own. Again, the broader risks of publishing a book are borne by the publisher, perhaps in company with the author, while the printer is the employer of labour and supplies the expensive types and machinery required for the business. And a somewhat similar plan is adopted in many branches of the metal trades, and of those which supply furniture, clothing, &c.

in the production of books &c.;

in house industries.

In the clothing trades especially we see a revival of what has been called the "house industry," which prevailed long ago in the textile industries; that is the system in which large undertakers give out work to be done in cottages and very small workshops to persons who work alone or with the aid of some members of their family, or who perhaps employ two or three hired assistants[1]. In remote villages in almost

[1] The German economists call this "factory like" (fabrikmässig) house industry, as distinguished from the "National" house industry, which uses the intervals of other work (especially the winter interruptions of agriculture) for subsidiary work in making textile and other goods. (See Schönberg on *Gewerbe* in his *Handbuch*.) Domestic workers of this last class were common all over Europe in the Middle Ages but are now becoming rare except in the mountains and in Eastern Europe. They are not always well advised in their choice of work. Much of what they make could be made better with far less labour in factories, and cannot be sold profitably in the open market: but for the most

every county of England agents of large undertakers come round to give out to the cottagers partially prepared materials for goods of all sorts, but especially clothes such as shirts and collars and gloves; and take back with them the finished goods. It is however in the great capital cities of the world, and in other large towns, especially old towns, where there is a great deal of unskilled and unorganized labour, with a somewhat low physique and morale, that the system is most fully developed, especially in the clothing trades, which employ two hundred thousand people in London alone, and in the cheap furniture trades. There is a continual contest between the factory and the domestic system, now one gaining ground and now the other: for instance just at present the growing use of sewing machines worked by steam power is strengthening the position of the factories in the boot trade; while factories and workshops are getting an increased hold of the tailoring trade. On the other hand the hosiery trade is being tempted back to the dwelling house by recent improvements in hand knitting machines; and it is possible that new methods of distributing power by gas and petroleum and electric engines may exercise a like influence on many other industries.

and in Sheffield trades.

Or there may be a movement towards intermediate plans, similar to those which are largely followed in the Sheffield trades. Many cutlery firms for instance put out grinding and other parts of their work, at piece work prices, to working men who rent the steam power which they require, either from the firm from whom they take their contract or from some one else: these workmen sometimes employing others to help them, sometimes working alone.

This plan has advantages;

Thus there are many ways in which those who undertake the chief risks of buying and selling may avoid the trouble of housing and superintending those who work for them. They all have their advantages; and when the workers are men of strong character, as at Sheffield, the results are on the whole not unsatisfactory. But unfortunately it is often the weakest class of workers, those with the least resource

but is liable to abuse.

part they make for their own or their neighbours' use, and thus save the profits of many series of middlemen.

and the least self-control who drift into work of this kind. The elasticity of the system which recommends it to the undertaker, is really the means of enabling him to exercise, if he chooses, an undesirable pressure on those who do his work.

For while the success of a factory depends in a great measure on its having a set of operatives who adhere steadily to it, the capitalist who gives out work to be done at home has an interest in retaining a great many persons on his books; he is tempted to give each of them a little employment occasionally and play them off one against another; and this he can easily do because they do not know one another and cannot arrange concerted action.

Several distinct functions are combined in one hand by the ideal manufacturer:

§ 5. When the profits of business are under discussion they are generally connected in people's minds with the employer of labour: "the employer" is often taken as a term practically coextensive with the receiver of business profits. But the instances which we have just considered are sufficient to illustrate the truth that the superintendence of labour is but one side, and often not the most important side of business work; and that the employer who undertakes the whole risks of his business really performs two entirely distinct services on behalf of the community, and requires a twofold ability.

the faculties required in him.

The ideal manufacturer for instance, if he makes goods not to meet special orders but for the general market, must, in his first rôle as merchant and organizer of production, have a thorough knowledge of *things* in his own trade. He must have the power of forecasting the broad movements of production and consumption, of seeing where there is an opportunity for supplying a new commodity that will meet a real want or improving the plan of producing an old commodity. He must be able to judge cautiously and undertake risks boldly; and he must of course understand the materials and machinery used in his trade.

But secondly in his rôle of employer he must be a natural leader of *men*. He must have a power of first choosing his assistants rightly and then trusting them fully; of interesting them in the business and of getting them to trust him, so as

to bring out whatever enterprise and power of origination there is in them; while he himself exercises a general control over everything, and preserves order and unity in the main plan of the business.

The abilities required to make an ideal employer are so great and so numerous that very few persons can exhibit them all in a very high degree. Their relative importance however varies with the nature of the industry and the size of the business; and while one employer excels in one set of qualities, another excels in another; scarcely any two owe their success to exactly the same combination of advantages. Some men make their way by the use of none but noble qualities, while others owe their prosperity to qualities in which there is very little that is really admirable except sagacity and strength of purpose.

The supply of business ability may be discussed in connection with the forms of business management.

Such then being the general nature of the work of business management, we have next to inquire what opportunities different classes of people have of developing business ability; and, when they have obtained that, what opportunities they have of getting command over the capital required to give it scope. This inquiry may conveniently be combined with some examination of the different "forms of business management"[1]. Hitherto we have considered almost exclusively that form in which the whole responsibility and control rests in the hands of a single individual. But this form is yielding ground to others in which the supreme authority is distributed among several partners or even a great number of shareholders. Private firms and joint stock companies, co-operative societies and public corporations are taking a constantly increasing share in the management of business; and one chief reason of this is that they offer an attractive field to people who have good business abilities, but have not inherited any great business opportunities.

The son of a business man starts with so many advantages

§ 6. The son of a man already established in business has certainly very great advantages over others. He has from his youth up special facilities for obtaining the knowledge and developing the faculties that are required in the

[1] This is what German economists call "Unternehmungs-formen."

management of his father's business: he learns quietly and almost unconsciously about men and manners in his father's trade and in those from which that trade buys and to which it sells; he gets to know the relative importance and the real significance of the various problems and anxieties which occupy his father's mind: and he acquires a technical knowledge of the processes and the machinery of the trade[1]. Some of what he learns will be applicable only to his father's trade; but the greater part will be serviceable in any trade that is in any way allied with that; while those general faculties of judgment and resource, of enterprise and caution, of firmness and courtesy, which are trained by association with those who control the larger issues of any one trade, will go a long way towards fitting him for managing almost any other trade. Further the sons of successful business men start with more material capital than almost any one else except those who by nurture and education are likely to be disinclined for business and unfitted for it: and if they continue their father's work, they have also the vantage ground of established trade connections. It would therefore at first sight seem likely that business men should constitute a sort of caste; dividing out among their sons the chief posts of command, and founding hereditary dynasties, which should rule certain branches of trade for many generations together. But the actual state of things is very different.

that one might expect business men to form something like a caste; but this is not the case.

As a matter of fact when a man has got together a great business, his descendants, in spite of all their great advantages, often fail to develop the high abilities and the special turn of mind and temperament required for carrying it on with equal success. He himself was probably brought up by parents of strong earnest character; and was educated by their personal influence and by struggle with difficulties in early life. But his children, at all events if they were born after he became rich, and in any case his grand-children,

For business ability and business tastes are not always inherited

[1] We have already noticed how almost the only perfect apprenticeships of modern times are those of the sons of manufacturers, who practise almost every important operation that is carried on in the works sufficiently to be able in after years to enter into the difficulties of all their employés and form a fair judgment on their work.

are perhaps left a good deal to the care of domestic servants who are not of the same strong fibre as the parents by whose influence he was educated. And while his highest ambition was probably success in business, they are likely to be at least equally anxious for social or academic distinction[1].

and even the best traditions will not often carry on a great business well for very long.

For a time indeed all may go well. His sons find a firmly established trade connection and, what is perhaps even more important, a well chosen staff of subordinates with a generous interest in the business. By mere assiduity and caution, availing themselves of the traditions of the firm, they may hold together for a long time. But when a full generation has passed, when the old traditions are no longer a safe guide, and when the bonds that held together the old staff have been dissolved, then the business almost invariably falls to pieces unless it is practically handed over to the management of new men who have meanwhile risen to partnership in the firm.

unless new blood is brought in by some method.

But in most cases his descendants arrive at this result by a shorter route. They prefer an abundant income coming to them without effort on their part, to one which though twice as large could be earned only by incessant toil and anxiety; and they sell the business to private persons or a joint stock company; or they become sleeping partners in it; that is sharing in its risks and in its profits, but not taking part in its management: in either case the active control over their capital falls chiefly into the hands of new men.

The method of private partnership.

§ 7. The oldest and simplest plan for renovating the energies of a business is that of taking into partnership some of its ablest employés. The autocratic owner and manager of a large manufacturing or trading concern finds that, as years go on, he has to delegate more and more responsibility to his chief subordinates; partly because the work to be

[1] Until lately there has ever been in England a kind of antagonism between academic studies and business. This is now being diminished by the broadening of the spirit of our great Universities, and by the growth of Colleges in our chief business centres. The sons of business men when sent to the Universities do not learn to despise their fathers' trades as often as they used to do even a generation ago. Many of them indeed are drawn away from business by the desire to extend the boundaries of knowledge. But the higher forms of mental activity, those which are constructive and not merely critical, tend to promote a just appreciation of the nobility of business work rightly done.

done is growing heavier, and partly because his own strength is becoming less than it was. He still exercises a supreme control, but much must depend on their energy and probity: so, if his sons are not old enough, or for any other reason are not ready to take part of the burden off his shoulders, he decides to stimulate the zeal of one or more of his trusted assistants by taking them into partnership: he thus lightens his own labours, at the same time that he secures that the task of his life will be carried on by those whose habits he has moulded, and for whom he has perhaps acquired something like a fatherly affection. Much of the happiest romance of life, much that is most pleasant to dwell upon in the social history of England from the Middle Ages up to our own day is connected with the story of private partnerships of this class[1].

But there are now, and there always have been private partnerships on more equal terms, two or more people of about equal wealth and ability combining their resources for a large and difficult undertaking. In such cases there is often a distinct partition of the work of management: in manufactures for instance one partner will sometimes give himself almost exclusively to the work of buying raw material and selling the finished product, while the other is responsible for the management of the factory: and in a trading establishment one partner will control the wholesale and the other the retail department. In these and other ways private partnership is capable of adapting itself to a great variety of problems: it is very strong and very elastic; it has played a great part in the past, and it is full of vitality now.

The method of public joint stock companies.

§ 8. But the expansion of old trades and the growth of new trades have long tended to outgrow the capitals that can easily be obtained by private companies; and from the end of the Middle Ages to the present time there has been a movement of constantly increasing force towards the sub-

[1] Many a youth has been stimulated to a brave career by the influence of ballads and tales which narrate the difficulties and the ultimate triumph of the faithful apprentice, who has at length married his employer's daughter and been taken into partnership by him. There are no influences on national character more far-reaching than those which thus give shape to the aims of aspiring youth.

stitution of public joint stock companies, the shares of which can be sold to anybody in the open market, for private companies, the shares in which are not transferable without the leave of all concerned; and various plans, with which we need not occupy ourselves just now, have been adopted in different countries for enabling the shareholders to limit their risks to their shares. The effect of this change has been to induce people, many of whom have no special knowledge of trade, to give their capital into the hands of others employed by them: and there has thus arisen a new distribution of the various parts of the work of business management.

The shareholders undertake the risks;

The ultimate undertakers of the risks incurred by a joint stock company are the shareholders; but as a rule they do not take much active part in engineering the business and controlling its general policy; and they take no part in superintending its details.

the Directors control the Managers;

After the business has once got out of the hands of its original promoters, the control of it is left chiefly in the hands of Directors; who, if the company is a very large one, probably own but a very small proportion of its shares, while the greater part of them have not much technical knowledge of the work to be done. They are not generally expected to give their whole time to it; but they are supposed to bring wide general knowledge and sound judgment to bear on the broader problems of its policy; and at the same time to make sure that the "Managers" of the company are doing their work thoroughly[1].

who superintend the details.

To the Managers and their assistants is left a great part of the work of engineering the business, and the whole of the work of superintending it: but they are not required to bring any capital into it; and they are supposed to be promoted

[1] Bagehot delighted to argue (see for instance *English Constitution*, Ch. VII.) that a Cabinet Minister often derives some advantage from his want of technical knowledge of the business of his Department. He can get that from the Permanent Secretary and other officials who are under his authority: he is not likely to set his judgment against theirs on matters where their knowledge give them the advantage; but his unprejudiced common sense is likely to overrule the traditions of officialism where they conflict with the public interest: and in like manner the interests of a Company may possibly sometimes be most advanced by those Directors who have the least technical knowledge of the details of its business.

from the lower ranks to the higher according to their zeal and ability. Since the joint stock companies in the United Kingdom have an aggregate income of £100,000,000, and do a tenth of the business of all kinds that is done in the country, they offer very large opportunities to men with natural talents for business management, who have not inherited any material capital, or any business connection.

Those who undertake the chief risks are not, as in a private firm, those most able to judge whether the business is well managed.

§ 9. Joint stock companies have great elasticity and can expand themselves without limit when the work to which they have set themselves offers a wide scope; and they are gaining ground in nearly all directions. But they have one great source of weakness in the absence of any adequate knowledge of the business on the part of the shareholders who undertake its chief risks. It is true that the head of a large private firm undertakes the chief risks of the business, while he intrusts many of its details to others; but his position is secured by his power of forming a direct judgment as to whether his subordinates serve his interests faithfully and discreetly. If those to whom he has intrusted the buying or selling of goods for him take commissions from those with whom they deal, he is in a position to discover and punish the fraud. If they show favouritism and promote incompetent relations or friends of their own, or if they themselves become idle and shirk their work, or even if they do not fulfil the promise of exceptional ability which induced him to give them their first lift, he can discover what is going wrong and set it right.

But in all these matters the great body of the shareholders of a joint stock company are, save in a few exceptional instances, almost powerless; though a few of the larger shareholders often exert themselves to find out what is going on; and are thus able to exercise an effective and wise control over the general management of the business. It is a strong proof of the marvellous growth in recent times of a spirit of honesty and uprightness in commercial matters, that the leading officers of great public companies yield as little as they do to the vast temptations to fraud which lie in their way. If they showed an eagerness to avail themselves of opportunities for wrong-doing at all approaching that of

The system is rendered workable

which we read in the commercial history of earlier civilization, their wrong uses of the trusts imposed in them would have been on so great a scale as to prevent the development of this democratic form of business. There is every reason to hope that the progress of trade morality will continue, aided in the future as it has been in the past, by a diminution of trade secrecy and by increased publicity in every form; and thus collective and democratic forms of business management may be able to extend themselves safely in many directions in which they have hitherto failed, and may far exceed the great services they already render in opening a large career to those who have no advantages of birth.

only by the modern growth of business morality.

Government undertakings.

The same may be said of the undertakings of governments imperial and local: they also may have a great future before them, but up to the present time the tax-payer who undertakes the ultimate risks has not generally succeeded in exercising an efficient control over the businesses, and in securing officers who will do their work with as much energy and enterprise as is shown in private establishments. The problem of government undertakings involves however many important side issues, which will require our careful attention later on.

Co-operative association in its best form

§ 10. The evils of these two methods of business management are however in a great measure avoided by the system of co-operation, at all events when it appears in its best form. For there a part or the whole of those shareholders who undertake the risks of the business are themselves employed by it; and all the employés, whether they contribute towards the material capital of the business or not, have a share in its profits, and some power of voting at the general meetings at which the broad lines of its policy are laid down, and the officers appointed who are to carry that policy into effect.

avoids many of the dangers of joint stock companies.

Thus the great body of the workers are the employers and masters of their own managers and foremen; they have fairly good means of judging whether the higher work of engineering the business is conducted honestly and efficiently, and they have the best possible opportunities for detecting any laxity or incompetence in its detailed administration.

And lastly they render unnecessary some of the minor work of superintendence that is required in other establishments; their own pecuniary interests and the pride they take in the success of their own business makes each of them averse to any shirking of work either by himself or by his fellow workmen.

But it has difficulties of its own;

But the system has difficulties of its own which have hitherto kept it from succeeding on a large scale except in the business of retailing commodities consumed by working men. Many of these difficulties do not belong properly to it, but are due to the fact that the system itself is not thoroughly carried out; for the greater part of those establishments which call themselves co-operative have not adopted co-operative principles in their entirety. But other difficulties belong strictly to it. For instance in buying and selling on a large scale the officers of a co-operative society are fallible and need assistance and control; and yet the ordinary members have little means of knowing what it would be best to do, and of detecting what is really being done. In some cases they have been served excellently by men of great genius both mentally and morally; men who for the sake of the Co-operative Faith that is in them, have worked with great ability and energy, and with perfect uprightness, being all the time content with lower pay than they could have got as business managers on their own account or for a private firm. But though men of this stamp may be more common among the officers of co-operative societies than in other occupations, they are not very common even there.

at all events when it is not fortunate in obtaining the service of exceptional men.

Again, human nature being what it is, the employés themselves are not always the best possible masters of their own foremen and managers; jealousies and frettings at reproof are apt to act like sand, that has got mixed with the oil in the bearings of a great and complex machinery. And in particular, since the hardest work of business management is generally that which makes the least outward show, those who work with their hands are apt to underrate the intensity of the strain involved in the highest work of engineering the business, and to grudge its being paid for at anything like as high a rate as it could earn elsewhere.

Time is on its side;

Some of these difficulties will be diminished by experience, by the diffusion of a better knowledge of the true principles of co-operation, and by that increase of general education which is every day fitting a larger number of the people for entering into the complex problems of business management. Others of the difficulties again will be partially or wholly removed by the increase in the number of co-operative societies, and by their growing tendency to act in alliance, if not in federation, with one another: for by this means they will avoid a considerable part of those speculative risks which are the chief of all the hindrances to the good management of many kinds of business on the co-operative plan.

We shall have to recur frequently to the problems suggested by both branches of the co-operative movement, that which has already achieved success in retail trade, and that which is entering on the more difficult and perilous paths of agriculture and manufacture.

and it may offer splendid opportunities to working men who have great business ability.

But we must not pursue this inquiry further now: enough has been said to show that the world is only just beginning to be ready for the higher work of the co-operative movement; which may therefore be reasonably expected to attain a much larger success in the future than in the past. And if so it will offer the best of all possible opportunities for working men to practise themselves in the work of business management, to grow into the trust and confidence of others, and gradually rise to posts in which any business abilities they may have, however great, will find sufficient scope for their full exercise.

The rise of the working man is not hindered as much as at first sight appears, by his want of capital;

§ 11. In speaking of the difficulty that a working man has in rising to a post in which he can turn his business ability to full account, the chief stress is commonly laid upon his want of capital: but this is not always his chief difficulty. For instance the co-operative distributive societies have accumulated a vast capital, on which they find it difficult to get a good rate of interest; and which they would be rejoiced to lend to any set of working men who could show that they had the capacity for dealing with difficult business problems. Co-operators who have firstly a high order of business ability and probity, and secondly the "per-

sonal capital" of a great reputation among their fellows for these qualities, will have no difficulty in getting command of enough material capital for a considerable undertaking: the real difficulty is to convince a sufficient number of those around them that they have these rare qualities. And the case is not very different when an individual endeavours to obtain from the ordinary sources the loan of the capital required to start him in business.

for the loan-fund is increasing in volume and in eagerness for employment.

It is true that in almost every business there is a constant increase in the amount of capital required to make a fair start; but there is a much more rapid increase in the amount of capital which is owned by people who do not want to use it themselves, and are so eager to lend it out that they will accept a constantly lower and lower rate of interest for it. Much of this capital passes into the hands of bankers and others, people of keen intellect and restless energy; people who have no class prejudices and care nothing for social distinctions; and who would promptly lend it to any one of whose business ability and honesty they were convinced. To say nothing of the credit that can be got in many businesses from those who supply the requisite raw material or stock in trade, the opportunities for direct borrowing are now so great that an increase in the amount of capital required for a start in business is no very serious obstacle in the way of a person who has once got over the initial difficulty of earning a reputation for being likely to use it well.

He is hindered much by the growing complexity of business;

And perhaps a greater though not so conspicuous a hindrance to the rise of the working man is the growing complexity of business. The head of a business has now to think of many things about which he never used to trouble himself in earlier days; and these are just the kind of difficulties for which the training of the workshop affords the least preparation. Against this must be set the rapid improvement of the education of the working man not only at school, but what is more important, in after life by newspapers, and from the work of co-operative societies and trades unions, and in other ways.

but he may overcome

About three-fourths of the whole population of England belong to the wage-earning classes; and at all events when

these difficulties.

they are well fed, properly housed and educated, they have their fair share of that nervous strength which is the raw material of business ability. Without going out of their way they are all consciously or unconsciously competitors for posts of business command. The ordinary workman if he shows ability generally becomes a foreman, from that he may rise to be a manager, and to be taken into partnership with his employer. Or having saved a little of his own he may start one of those small shops which still can hold their own in a working man's quarter, stock it chiefly on credit, and let his wife attend to it by day, while he gives his evenings to it. In these or in other ways he may increase his capital till he can start a small workshop, or factory. Once having made a good beginning he will find the banks eager to give him generous credit. He must have time; and since he is not likely to start in business till after middle age he must have a long as well as a strong life; but if he has this and has also "patience, genius and good fortune" he is pretty sure to command a large capital before he dies[1]. In a factory those who work with their hands, have better opportunities of rising to posts of command than the book-keepers and many others to whom social tradition has assigned a higher place. But in trading concerns it is otherwise; what manual work is done in them has as a rule no educating character, while the experience of the office is better adapted for preparing a man to manage a commercial than a manufacturing business.

The rise may take

There is then on the whole a broad movement from below

[1] The Germans say that success in business requires "Geld, Geduld, Genie and Glück." The chances that a working-man has of rising vary somewhat with the nature of the work, being greatest in those trades in which a careful attention to details counts for most, and a wide knowledge, whether of science or of the world movements of speculation, counts for least. Thus for instance "thrift and the knowledge of practical details" are the most important elements of success in the ordinary work of the pottery trade; and in consequence most of those who have done well in it "have risen from the bench like Josiah Wedgwood" (see Mr G. Wedgwood's evidence before the Commission on Technical Education); and a similar statement might be made about many of the Sheffield trades. But some of the working classes develop a great faculty for taking speculative risks; and if the knowledge of facts by which successful speculation must be guided, comes within their reach, they will often push their way through competitors who have started above them. Some of the most successful wholesale dealers in perishable commodities such as fish and fruit have begun life as market porters.

upwards. There are perhaps not so many who rise at once from the position of working men to that of employers: but there are more who get on sufficiently far to give their sons a good chance of attaining to the highest posts. The complete rise is not so very often accomplished in one generation; it is more often spread over two; but the total volume of the movement upwards is probably greater than it has ever been. And it may be remarked in passing that it is better for society as a whole that the rise should be distributed over two generations. The workmen who at the beginning of this century rose in such large numbers to become employers were seldom fit for posts of command: they were too often harsh and tyrannical; they lost their self-control, and were neither truly noble nor truly happy; while their children were often haughty, extravagant, and self-indulgent, squandering their wealth on low and vulgar amusements, having the worst faults of the older aristocracy without their virtues. The foreman or superintendent who has still to obey as well as to command, but who is rising and sees his children likely to rise further, is in some ways more to be envied than the small master. His success is less conspicuous, but his work is often higher and more important for the world, while his character is more gentle and refined and not less strong. His children are well-trained; and if they get wealth, they are likely to make a fairly good use of it.

two generations instead of one;

but that is not an unmixed evil.

§ 12. When a man of great ability is once at the head of an independent business, whatever be the route by which he has got there, he will with moderate good fortune, soon be able to show such evidence of his power of turning capital to good account as to enable him to borrow in one way or another almost any amount that he may need. Making good profits he adds to his own capital, and this extra capital of his own is a material security for further borrowings; while the fact that he has made it himself tends to make lenders less careful to insist on a full security for their loans. Of course fortune tells for much in business: a very able man may find things going against him; the fact that he is losing money may diminish his power of borrowing. If he is working partly on borrowed capital, it may even make those who

An able business man speedily increases the capital at his command

though he is at some disadvantage when

working with borrowed capital.

have lent it, refuse to renew their loans, and may thus cause him to succumb to what would have been but a passing misfortune, if he had been using no capital but his own[1]: and in fighting his way upwards he may have a chequered life full of great anxieties, and even misfortunes. But he can show his ability in misfortune as well as in success: human nature is sanguine; and it is notorious that men are abundantly willing to lend to those who have passed through commercial disaster without loss to their business reputation. Thus, in spite of vicissitudes, the able business man generally finds that in the long run the capital at his command grows in proportion to his ability.

A man who has not great business ability loses his capital the more rapidly the larger his business is.

Meanwhile he, who with small ability is in command of a large capital, speedily loses it: he may perhaps be one who could and would have managed a small business with credit, and left it stronger than he had found it: but if he has not the genius for dealing with large problems, the larger it is the more speedily will he break it up. For as a rule a large business can be kept going only by transactions which, after allowing for ordinary risks, leave but a very small percentage of gain. A small profit on a large turn-over quickly made, will yield a rich income to able men: and in those businesses which are of such a nature as to give scope to very large capitals, competition generally cuts the rate of profits on the turn-over very fine. A village trader may make five per cent. less profits on his turn-over than his abler rival, and yet be able to hold his head above water. But in those large manufacturing and trading businesses in which there is a quick return and a straightforward routine, the whole profits on the turn-over are often so very small that a person who falls behind his rivals by even a small percentage loses a large sum at every turn-over; while in those large businesses which

[1] The danger of not being able to renew his borrowings just at the time when he wants them most, puts him at a disadvantage relatively to those who use only their own capital, much greater than is represented by the mere interest on his borrowings: and, when we come to that part of the doctrine of Distribution which deals with Earnings of Management, we shall find that, for this among other reasons, profits are something more than interest in addition to Earnings of Management proper, i.e. those earnings which are properly to be ascribed to the business abilities of those who, when employing their own capital, get full profits.

are difficult and do not rely on routine, and which afford high profits on the turn-over to really able management, there are no profits at all to be got by anyone who attempts the task with only ordinary ability.

These two forces tend to adjust the capital to the ability required to use it well.

These two sets of forces, the one increasing the capital at the command of able men, and the other destroying the capital that is in the hands of weaker men, bring about the result that there is a far more close correspondence between the ability of business men and the size of the businesses which they own than at first sight would appear probable. And when to this fact we add all the many routes, which we have already discussed, by which a man of great natural business ability can work his way up high in some private firm or public company, we may conclude that wherever there is work on a large scale to be done in such a country as England, the ability and the capital required for it are pretty sure to be speedily forthcoming.

Further, just as industrial skill and ability are getting every day to depend more and more on the broad faculties of judgment, promptness, resource, carefulness and steadfastness of purpose—faculties which are not specialized to any one trade, but which are more or less useful in all—so it is with regard to business ability. In fact business ability consists more of these general and non-specialized faculties than do industrial skill and ability in the lower grades: and the higher the grade of business ability the more various are its applications.

Business ability in command of capital has a fairly defined supply price in such a country as England.

Since then business ability in command of capital moves with great ease horizontally from a trade which is overcrowded to one which offers good openings for it: and since it moves with great ease vertically, the abler men rising to the higher posts in their own trade, we may conclude that in modern England the supply of business ability in command of capital accommodates itself, as a general rule, to the demand for it.

CHAPTER XIII.

CONCLUSION. THE LAW OF INCREASING IN RELATION TO THAT OF DIMINISHING RETURN.

The relation in which the later chapters of this Book stand to the earlier.

§ 1. At the beginning of this Book we saw how the extra Return of raw produce which Nature affords to an increased application of capital and labour, other things being equal, tends in the long run to diminish. In the remainder of the Book and especially in the last four chapters we have looked at the other side of the shield, and seen how man's power of productive work increases with the volume of the work that he does. Considering first the causes that determine the Supply of Labour, we saw how every increase in the physical, mental and moral vigour of a people made them more likely, other things being equal, to rear to adult age a large number of vigorous children. Turning next to the Growth of Wealth we observed how every increase of wealth tends in many ways to make a greater increase more easy than before. And lastly we saw how every increase of wealth and every increase in the numbers and intelligence of the people increased the facilities for a highly developed Industrial Organization, which in its turn adds much to the collective efficiency of capital and labour.

A summary of the later chapters of this Book.

Looking more closely at the economies arising from an increase in the scale of production of any kind of goods, we found that they fell into two classes—those dependent on the general development of the industry and those dependent on the resources of the individual houses of business engaged in

it and the efficiency of their management; or, as we may say, into *external* and *internal* economies.

We saw how these latter economies are liable to constant fluctuations so far as any particular house is concerned. An able man assisted perhaps by some strokes of good fortune, gets a firm footing in the trade, he works hard and lives sparely, his own capital grows fast, and the credit that enables him to borrow more capital grows still faster; he collects around him subordinates of more than ordinary zeal and ability; as his business increases they rise with him, they trust him and he trusts them, each of them devotes himself with energy to just that work for which he is specially fitted, so that no high ability is wasted on easy work, and no difficult work is entrusted to unskilful hands. Corresponding to this steadily increasing economy of skill, the growth of his business brings with it similar economies of specialized machines and plant of all kinds; every improved process is quickly adopted and made the basis of further improvements; success brings credit and credit brings success; credit and success help to retain old customers and to bring new ones; the increase of his trade gives him great advantages in buying; his goods advertise one another, and thus diminish his difficulty in finding a vent for them. The increase in the scale of his business increases rapidly the advantages which he has over his competitors, and lowers the price at which he can afford to sell. This process may go on as long as his energy and enterprise, his inventive and organizing power retain their full strength and freshness, and so long as the risks which are inseparable from business do not cause him exceptional losses; and if it could endure for a hundred years, he and one or two others like him would divide between them the whole of that branch of industry in which he is engaged. The large scale of their production would put great economies within their reach; and provided they competed to their utmost with one another, the public would derive the chief benefit of these economies, and the price of the commodity would fall very low.

But the brevity of human life and the still greater brevity of that part of it in which men's best faculties

Summary.

are in full vigour prevents this concentration. After a time the guidance of the business falls into the hands of people with less energy and less creative genius, if not with less active interest in its prosperity. Perhaps it decays altogether, perhaps it is carried on with more or less wisdom and ability by a private firm or a public company. It may thus retain the advantages of division of labour, of specialized skill and machinery; it may even increase them by a further increase of its capital; and under favourable conditions it may secure a permanent and prominent place in the work of production. But it is almost sure to have lost much of its elasticity and of its progressive force; the advantages are no longer exclusively on its side in its competition with younger and smaller rivals; it can no longer obtain from every increase in its scale of production the means of reducing considerably the price at which it sells its goods.

The growth and the decay of the energies of a great business establishment seldom follow twice on exactly the same lines even in the same trade: they vary with the varying incidents of the life and fortune, of the personal friendships and the business and family connections of the individuals concerned; but they also vary much from one trade to another. Thus for instance no single very large business has appeared in agriculture, while in banking and insurance, in the supply of news, and in transport by land and sea, such small businesses as still remain find a constantly increasing difficulty in holding their own. There is no rule of universal application; but the struggle between the solid strength of steady-going firms with large capitals on the one hand, and the quick inventiveness and energy, the suppleness and power of variation of their smaller rivals on the other, seems inclined to issue in the large majority of cases in the victory of the former. We may conclude that as a general rule, subject to important exceptions, an increase in the total volume of any branch of production tends to increase in an even greater proportion the average size of the businesses engaged in it.

When therefore we are considering the broad results which the growth of wealth and population exert on the

economies of production, the general character of our conclusions is not very much affected by the facts that many of these economies depend directly on the size of the individual establishments engaged in the production, and that in almost every trade there is a constant rise and fall of large businesses, at any one moment some firms being in the ascending phase and others in the descending. For decay in one direction is sure to be more than balanced by growth in another in times of average prosperity.

Meanwhile an increase in the aggregate scale of production of course increases those economies which do not directly depend on the size of individual houses of business. The most important of these result from the growth of correlated branches of industry which mutually assist one another, perhaps being concentrated in the same localities, but anyhow availing themselves of the modern facilities for communication offered by steam transport, by the telegraph and by the printing press. The economies arising from such sources as this which are accessible to any branch of production do not depend exclusively upon its own growth: but yet they are sure to grow rapidly and steadily with that growth; and they are sure to dwindle in some, though not in all respects, if it decays.

The bearing of these results on the study of the equilibrium of demand and supply in the next Book.

These results will be of great importance when we come to discuss the causes which govern the supply price of a commodity. Speaking generally, and leaving allowance for special cases to be made separately, we now see that we may neglect the fact that when more of a commodity is wanted, the extra production is very likely to come from some new producer just struggling into business, who works under many disadvantages, and has to be content for a time with little or no profits, but who is satisfied with the fact that he is establishing a connection and taking the first steps towards building up a successful business. For although this extra produce may sometimes be raised at a greater cost of labour and sacrifice than that which went before, even in an industry which derives great economies from production on a large scale, yet the general rule will be the other way; and it will more commonly be got by

increasing the output of businesses already established, at a less than proportionate cost of extra labour and sacrifice. The way is thus prepared for the general theory of equilibrium of demand and supply in the next Book: and we may there regard an increase in the aggregate volume of production by any branch of manufacture as likely to be attained generally at a less than proportionate cost of labour and sacrifice.

But before closing the present Book we may stay a little to consider the bearing of its results on the problem of the pressure of population on the means of subsistence. We are not yet in a position to deal with it thoroughly, but there is some advantage in taking a rapid survey of it at this early stage.

Subject to conditions which must be always borne in mind,

§ 2. Our discussion of the character and organization of industry taken as a whole tends to show that an increase in the volume of labour causes in general, other things being equal, a more than proportionate increase in the total efficiency of labour. But we must not forget that other things may not be equal. The increase of numbers may be accompanied by a more or less general adoption of unhealthy and enervating habits of life in overcrowded towns. Or it may have started badly, outrunning the material resources of the people, causing them with imperfect appliances to make excessive demands on the soil; and so to call forth the stern action of the Law of Diminishing Return as regards raw produce, without having the power of minimizing its effects: having thus begun with poverty, an increase in numbers may go on to its too frequent consequences in that weakness of character which unfits a people for developing a highly organized industry.

an increase of numbers generally leads to a more than proportionate increase of collective efficiency.

All this and more may be granted, and yet it remains true that the collective efficiency of a people with a given average of individual strength and energy increases more than in proportion to their numbers. If they can import as much food as they want on easy terms, and, by this or other means, escape from the pressure of the Law of Diminishing Return so far as raw produce goes; if, as may be reasonably supposed, their wealth increases at least as fast as their numbers; if they avoid habits of life that would enfeeble them; then every increase in their numbers is likely to bring

a more than proportionate increase in their power of obtaining material goods. For it enables them to secure the many various economies of specialized skill and specialized machinery, of localized industries and production on a large scale: it enables them to have increased facilities of communication of all kinds; while the very closeness of their neighbourhood diminishes the expense of time and effort involved in every sort of traffic between them, and gives them new opportunities of getting social enjoyments and the comforts and luxuries of culture in every form. It is true that against this must be set the growing difficulty of finding solitude and quiet and even fresh air[1]. This deduction is a weighty one; but there still remains a balance of good.

The Law of Increasing Return.

§ 3. Thus then while the part which Nature plays in production conforms to the Law of Diminishing Return, the part which man plays conforms to the LAW OF INCREASING RETURN, which may be stated thus:—An increase of capital and labour leads generally to an improved organization; and therefore in those industries which are not engaged in raising raw produce it generally gives a return increased more than in proportion; and further this improved organization tends to diminish or even override any increased resistance which Nature may offer to raising increased amounts of raw produce.

A broader statement of the Law.

Taking account of the fact that an increasing density of population generally brings with it access to new social enjoyments we may give a rather broader scope to this statement and say:—An increase of population accompanied by an equal increase in the material sources of enjoyment and aids to production is likely to lead to a more than proportionate increase in the aggregate income of enjoyment of all kinds; provided firstly, an adequate supply of raw produce can be obtained without great difficulty, and secondly

[1] The Englishman Mill bursts into unwonted enthusiasm when speaking (*Political Economy*, Book IV. Ch. VI. § 2) of the pleasures of wandering alone in beautiful scenery: American economists from Carey to Mr Henry George no less characteristically use their highest eloquence in splendid descriptions of the growing richness of human life as the backwoodsman finds neighbours settling around him, as the backwoods settlement developes into a village, the village into a town, and the town into a vast city. (See for instance *Progress and Poverty*, Book IV. Ch. II.)

there is no such overcrowding as causes physical and moral vigour to be impaired by the want of fresh air and light and of healthy and joyous recreation for the young.

The effects of a growth of numbers must be carefully distinguished from those of the growth of wealth by which it is generally accompanied.

The accumulated wealth of civilized countries is at present growing faster than the population: and though it may be true that the wealth per head would increase somewhat faster if the population did not increase quite so fast; yet as a matter of fact an increase of population is likely to continue to be accompanied by a more than proportionate increase of the material aids to production: and in a country such as England is now, with easy access to abundant foreign supplies of raw material, an increase of population is accompanied by a more than proportionate increase of the means of satisfying human wants other than the need for light, fresh air, &c. Much of this increase is however attributable not to the increase of industrial efficiency but to the increase of wealth by which it is accompanied: and therefore it does not necessarily benefit those who have no share in that wealth. And further, England's foreign supplies of raw produce may at any time be checked by changes in the trade regulations of other countries, and may be almost cut off by a great war; while the naval and military expenditure which would be necessary to make the country fairly secure against this last risk, would appreciably diminish the benefits that she derives from the action of the Law of Increasing Return.

BOOK V.

THE THEORY OF

THE EQUILIBRIUM OF DEMAND AND SUPPLY

WITH SOME CONSIDERATIONS AS TO ITS BEARING ON THE DOCTRINE OF MAXIMUM SATISFACTION.

CHAPTER I.

ON MARKETS.

§ 1. In spite of a great variety in detail nearly all the chief problems of economics agree in this that they have a kernel of the same kind. This kernel is an inquiry as to the balancing of two opposed classes of motives, the one consisting of desires to acquire certain new economic goods, and the other of desires to avoid certain efforts or retain certain immediate enjoyments or other economic goods, the command over which has already been acquired; or in other words it is an inquiry into the balancing of the forces of Demand and Supply, these terms being used in their broadest sense. In the study of this equilibrium there is much that is common ground to many economic problems, the other incidents of which have little in common, or may even belong to widely remote districts of the region of economics. And therefore a great saving of time, as well as some gain in scientific thoroughness is to be attained by treating this common kernel carefully once for all.

Most economic problems have a common kernel relating to the equilibrium of demand and supply.

The purpose then of the present Book is to examine the general conditions of the Equilibrium of Demand and Supply: illustrations will be taken now from one class of economic problems and now from another, but the reasoning itself will be kept free from assumptions which specially belong to any particular class.

§ 2. When demand and supply are spoken of in relation to one another, it is of course necessary that the markets to

Definition of a *Market*.

which they refer should be the same. As Cournot says "Economists understand by the term MARKET, not any particular market place in which things are bought and sold, but the whole of any region in which buyers and sellers are in such free intercourse with one another that the prices of the same goods tend to equality easily and quickly[1]." Or again as Jevons says:—"Originally a market was a public place in a town where provisions and other objects were exposed for sale; but the word has been generalized, so as to mean any body of persons who are in intimate business relations and carry on extensive transactions in any commodity. A great city may contain as many markets as there are important branches of trade, and these markets may or may not be localized. The central point of a market is the public exchange, mart or auction rooms, where the traders agree to meet and transact business. In London, the Stock Market, the Corn Market, the Coal Market, the Sugar Market, and many others are distinctly localized; in Manchester the Cotton Market, the Cotton Waste Market, and others. But this distinction of locality is not necessary. The traders may be spread over a whole town, or region of country, and yet make a market, if they are, by means of fairs, meetings, published price lists, the post office, or otherwise, in close communication with each other[2]."

Thus the more nearly perfect a market is, the stronger is the tendency for the same price to be paid for the same thing at the same time in all parts of the market: but of course if the market is large, allowance must be made for the expense of delivering the goods to different purchasers; each of whom must be supposed to pay in addition to the market price a special charge on account of delivery[3].

Boundaries of a market.

§ 3. In applying economic reasonings in practice it is often difficult to ascertain how far the movements of supply and demand in any one place are influenced by those in

[1] *Récherches sur les Principes Mathématiques de la Théorie des Richesses*, Ch. IV.

[2] *Theory of Political Economy*, Ch. IV.

[3] Thus it is common to see the prices of bulky goods quoted as delivered "free on board" (f. o. b.) any vessel in a certain port, each purchaser having to make his own reckoning for bringing the goods home.

another. It is clear that the general tendency of the telegraph, the printing press and steam traffic is to extend the area over which such influences act and to increase their force. The whole Western World may, in a sense, be regarded as one market for many kinds of stock exchange securities, for the more valuable metals, and to a less extent for wool and cotton and even wheat; proper allowance being made for expenses of transport, in which may be included taxes levied by any customs houses through which the goods have to pass. For in all these cases the expenses of transport, including customs duties, are not sufficient to prevent buyers from all parts of the Western World from competing with one another for the same supplies.

Instances of very wide markets.

There are many special causes which may widen or narrow the market of any particular commodity: but nearly all those things for which there is a very wide market are in universal demand, and capable of being easily and exactly described. Thus for instance cotton, wheat, and iron satisfy wants that are urgent and nearly universal. They can be easily described, so that they can be bought and sold by persons at a distance from one another and at a distance also from the commodities. If necessary, samples can be taken of them which are truly representative: and they can even be "graded," as is the actual practice with regard to grain in America, by an independent authority; so that the purchaser may be secure that what he buys will come up to a given standard, though he has never seen a sample of the goods which he is buying and perhaps would not be able himself to form an opinion on it if he did[1].

General conditions which affect the extent of the market for a thing. Suitability for grading and sampling.

Commodities for which there is a very wide market must also be such as will bear a long carriage: they must be somewhat durable, and their value must be considerable in proportion to their bulk. A thing which is so bulky that its

Portability.

[1] Thus the managers of a public or private "elevator," receive grain from a farmer, divide it into different grades, and return to him certificates for as many bushels of each grade as he has delivered. His grain is then mixed with those of other farmers; his certificates are likely to change hands several times before they reach a purchaser who demands that the grain shall be actually delivered to him; and of what that purchaser receives, little or none may have come from the farm of the original recipient of the certificate.

price is necessarily raised very much when it is sold far away from the place in which it is produced, must as a rule have a narrow market. The market for common bricks for instance is practically confined to the near neighbourhood of the kilns in which they are made: they can scarcely ever bear a long carriage by land to a district which has any kilns of its own. But bricks of certain exceptional kinds have a market extending over a great part of England.

The conditions of highly organized markets illustrated by reference to stock exchanges.

§ 4. Let us then consider more closely the markets for things which satisfy in an exceptional way these conditions of being in general demand, cognizable and portable. They are, as we have said, stock exchange securities and the more valuable metals.

Any one share or bond of a public company, or any bond of a government is of exactly the same value as any other of the same issue: it can make no difference to any purchaser which of the two he buys. Some securities, principally those of comparatively small mining, shipping and other companies, require local knowledge, and are not very easily dealt in except on the stock exchanges of provincial towns in their immediate neighbourhood. But the whole of England is one market for the shares and bonds of a large English railway. In ordinary times a dealer will sell, say, Midland Railway shares even if he has not them himself, because he knows they are always coming into the market, and he is sure to be able to buy them.

But the strongest case of all is that of securities which are called "international" because they are in request in every part of the globe. They are the bonds of the chief governments, and of very large public companies such as those of the Suez Canal and the New York Central Railway. For bonds of this class the telegraph keeps prices at almost exactly the same level in all the stock exchanges of the world. If the price of one of them rises in New York or in Paris, in London or in Berlin, the mere news of the rise tends to cause a rise in other markets; and if for any reason the rise is delayed, that particular class of bonds is likely soon to be offered for sale in the high priced market under telegraphic orders from the other markets, while dealers

in the first market will be making telegraphic purchases in other markets. These sales on the one hand, and purchases on the other, strengthen the tendency which the price has to seek the same level everywhere; and unless some of the markets are in an abnormal condition, the tendency soon becomes irresistible.

On the stock exchange also a dealer can generally make sure of selling at nearly the same price as that at which he buys; and is often willing to buy first class stocks at a half, or a quarter, or an eighth, or in some cases even a sixteenth per cent. less than he offers in the same breath to sell them at. And it is an instructive fact for our present purposes that if there are two securities equally good, one of them being a part of a large issue of bonds, and the other a part of a small issue by the same government, so that the first is constantly coming on the market, and the latter but seldom; the dealers will on this account alone require a larger margin between their selling price and their buying price in the latter case than in the former[1]. This illustrates well the great law, of which we shall have much to say when we come to consider the influence of foreign trade on economic progress, that the larger the market for a commodity the smaller generally are the fluctuations in its price, and the lower is the percentage on the turnover which dealers charge for doing business in it.

Stock exchanges then are the pattern on which markets have been, and are being formed for dealing in many kinds of produce which can be easily and exactly described, are portable and in general demand. The material commodities however which possess these qualities in the highest degree are gold and silver. For that very reason they have been chosen by common consent for use as money, to represent the

The world market for the precious metals.

[1] In extreme cases the difference between the price at which a dealer is willing to buy and that at which he will sell amounts to from five to twenty per cent. of the selling value of the security. If he buys, he may have to carry this security a long time before he meets with any one who comes to take it from him, and meanwhile it may fall in value: while if he undertakes to deliver a security which he has not himself got and which does not come on the market every day, he may be unable to complete his contract without much trouble and expense.

value of other things: the world market for them is most highly organized, and will be found to offer many subtle illustrations of the actions of the laws which we are now discussing.

Putting aside cases of retail dealing,

§ 5. At the opposite extremity to international stock exchange securities and the more valuable metals are those things which must be made to order to suit particular individuals, such as well fitting clothes. They can scarcely be said to have a wholesale market at all; the conditions by which their price is determined are those of retail buying and selling, and the study of them may be postponed.

we pass to a market which seems to be narrowly confined,

Turning then to wholesale markets which are confined within narrow boundaries, we may find our typical instance in the sale of the commoner kinds of vegetables in a country town. The market gardeners in the neighbourhood have probably to arrange for the sale of their vegetables to the townspeople with but little external interference on either side. There may be some check to extreme prices by the power on the one side of selling and on the other of buying elsewhere; but under ordinary circumstances the check is inoperative. It may however happen that some of the market gardeners are almost equally near a second country town, and send their vegetables now to one and now to the other; and some people who occasionally buy in the first town may have equally good access to the second. The least variation in price will lead them to prefer the better market; and thus make the bargainings in the two towns to some extent mutually dependent. It may happen that this second town is in close communication with London or some other central market, so that its prices are controlled by the prices in the central market; and in that case prices in our first town also must move to a considerable extent in harmony with them. As news passes from mouth to mouth till a rumour spreads far away from its forgotten source, so even the most secluded market is liable to be influenced by changes of which those in the market have no direct cognizance, changes that have had their origin far away and have spread gradually from market to market.

though even this is subject to indirect influences from great distances.

Intermediate between the two extremes of world markets

and secluded markets are the great majority of markets which the economist and the business man have to study. It is always difficult to know how much influence to assign to the indirect competition between distant markets; the allowance to be made will often depend upon causes which can be detected only by those who have special knowledge of the facts; and in such cases much must be left to the trained instincts of the traders immediately concerned. But some sides of these difficulties are common to a great variety of economic problems, and cannot be evaded by the economist: they take a prominent place in the discussion of Local Variations of Value, and in that particular branch of it which deals with Foreign Trade; but we need not consider them further now.

Limitations of market with regard to time affect the nature of the causes of which we have to take account; and will require careful study in this Book and that which follows.

§ 6. Again markets vary with regard to the period of time which is allowed to the forces of demand and supply to bring themselves into equilibrium with one another, as well as with regard to the area over which they extend. And this element of Time requires more careful attention just now than does that of Space. For the nature of the equilibrium itself and that of the causes by which it is determined, vary with the length of the period over which the market is taken to extend. We shall find that if the period is short, the supply is limited to the stores which happen to be at hand: if the period is longer, the supply will be influenced by the cost of producing the commodity in question; and if the period is very long, this cost will be influenced by the cost of producing the labour and the material things required for producing the commodity. This latter distinction will be seen to be one of degree only, and to be not clearly and firmly drawn: and even the former is not perfectly definite, but yet it is definite enough to merit a separate discussion. Accordingly we shall consider in the next chapter those temporary equilibria of demand and supply, in which the cost of producing the commodity exerts either no influence or merely an indirect influence.

CHAPTER II.

TEMPORARY EQUILIBRIUM OF DEMAND AND SUPPLY.

A simple instance of equilibrium between desire and effort.

§ 1. THE simplest case of equilibrium between desire and effort is found when a person satisfies one of his wants by his own direct action, as for instance when he picks blackberries. At first the pleasure of eating is much more than enough to repay the trouble of picking; in fact the action of picking may itself be pleasurable for a time. But after he has eaten a good deal, the desire for more diminishes; while the task of picking begins to cause weariness, which at last counterbalances the desire for eating, and equilibrium is reached. The satisfaction which he can get from picking fruit has arrived at its *maximum:* for up to that time every fresh picking has added more to his pleasure than it has taken away; and after that time any further picking would take away from his pleasure more than it would add[1].

In a casual barter there is generally no true equilibrium.

In a casual bargain that one person makes with another, as for instance when two backwoodsmen barter a rifle for a canoe, there is seldom anything that can properly be called an equilibrium of supply and demand: there is probably a margin of satisfaction on either side. Probably the one would be willing to give something besides the rifle for the canoe, if he could not get the canoe otherwise, while the other would in case of necessity give something besides the canoe for the rifle.

The case of systematic

It is indeed possible that a true equilibrium may be arrived at under a system of barter; but barter, though earlier

[1] See Mathematical Note XII.

in history than buying and selling, is in some ways more intricate: and the simplest cases of a true equilibrium are found in the markets of a more advanced state of civilization.

barter may be deferred.

§ 2. Let us take an illustration from a corn market in a country town. The amount which each farmer or other seller offers for sale at any price is governed by his own need for money in hand, and by his calculation of the present and future conditions of the market with which he is connected. There are some prices which no seller would accept, some which no one would refuse. There are other intermediate prices which would be accepted for larger or smaller amounts by many or all of the sellers. Let us assume for the sake of simplicity that all the corn in the market is of the same quality. An acute dealer having corn for sale may perhaps, after looking around him, come to the conclusion that if 37*s.* could be got throughout the day, the farmers between them would be willing to sell to the extent of about 1,000 quarters; and that if no more than 36*s.* could be got, several would refuse to sell, or would sell only small quantities, so that only 700 quarters would be brought forward for sale; and that a price of 35*s.* would only induce some 500 quarters to be brought forward. Suppose him further to calculate that millers and others would be willing to buy 900 quarters if they could be got at 35*s.* each, but only 700 if they could not be got for less than 36*s.*, and only 600 if they could not be got for less than 37*s.*[1] He will conclude that a price of 36*s.*, if established at once, would equate supply and demand, because the amount offered for sale at that price would equal the amount which could just find purchasers at that price. He will therefore take at once any offer considerably over 36*s.*; and other sellers will do the same.

Illustration from a local corn market in which a true though temporary equilibrium is reached.

Buyers on their part will make similar calculations; and if at any time the price should rise considerably above 36*s.*

[1] This result of his study of the market may be put in a tabular form thus

At the price	Sellers will be willing to sell	Buyers will be willing to buy
37*s.*	1000 quarters,	600 quarters.
36*s.*	700 ,,	700 ,,
35*s.*	500 ,,	900 ,,

they will argue that the supply will be much greater than the demand at that price; therefore even those of them who would rather pay that price than go unserved, wait, and by waiting they help to bring the price down. On the other hand when the price is much below 36*s.* even those sellers who would rather take the price than leave the market with their corn unsold, may argue that at that price the demand will be in excess of the supply: so they wait, and by waiting help to bring the price up.

The price of 36*s.* has thus a claim to be called the true equilibrium price: because if it were fixed on at the beginning, and adhered to throughout, it would exactly equate demand and supply; and because every dealer who has a perfect knowledge of the circumstances of the market expects that price to be established. If he sees the price differing much from 36*s.* he expects that a change will come before long, and by anticipating it he helps it to come quickly.

Even though dealers have an imperfect knowledge of the conditions of the market, there will probably be a near approach to this equilibrium.

It is not indeed necessary for our argument that any dealer should have a thorough knowledge of the circumstances of the market. Many of the buyers may perhaps underrate the willingness of the sellers to sell, with the effect that for some time the price rules at the highest level at which any buyers can be found; and thus 500 quarters may be sold before the price sinks below 37*s.* But afterwards the price must begin to fall and the result will still probably be that 200 more quarters will be sold, and the market will close on a price of about 36*s.* For when 700 bushels have been sold, no seller will be anxious to dispose of any more except at a higher price than 36*s.*, and no buyer will be anxious to purchase any more except at a lower price than 36*s.* In the same way if the sellers had underrated the willingness of the buyers to pay a high price, some of them might begin to sell at the lowest price they would take, rather than have their corn left on their hands, and in this case much corn might be sold at a price of 35*s.*; but for all that the market would probably close on a price of 36*s.* and a total sale of 700 quarters.

But in this case there is a latent

§ 3. In this illustration there is a latent assumption which is in accordance with the actual conditions of most

markets; but which ought to be distinctly recognized in order to prevent its creeping into those cases in which it is not justifiable. We tacitly assumed that the sum which purchasers were willing to pay, and which sellers were willing to take for the seven hundredth bushel would not be affected by the question whether the earlier bargains had been made at a high or a low rate. We allowed for the diminution in the marginal utility of corn to the buyers as the amount bought increased. But we did not allow for any appreciable change in the marginal utility of money; we assumed that it would be practically the same whether the early payments had been at a high or a low rate.

assumption, which may be mischievous if not noticed, that the marginal utility of money to the several dealers does not appreciably change during the dealing.

This assumption is justifiable with regard to most of the market dealings with which we are practically concerned. When a person buys anything for his own consumption, he generally spends on it a small part of his total resources; while when he buys it for the purposes of trade, he looks to re-selling it, and therefore his potential resources are not diminished. In either case the marginal utility of money to him is not appreciably changed. But though this is the case as a rule, there are exceptions to the rule.

This is generally true in a corn market, though there are exceptions even there;

A buyer is sometimes straitened for want of ready money, and has to let offers pass by him in no way inferior to others which he has gladly accepted. His own funds being exhausted, he could not perhaps borrow except on terms that would take away all the profit that the bargains had at first sight offered.

Again it is possible that several of those who had been counted as ready to sell corn at a price of 36*s.* were willing to sell only because they were in urgent need of a certain amount of ready money; if they succeeded in selling some corn at a high price, there might be a perceptible diminution in the marginal utility of ready money to them; and therefore they might refuse to sell for 36*s.* a quarter all the corn which they would have sold if the price had been 36*s.* throughout. In this case the sellers in consequence of getting an advantage in bargaining at the beginning of the market might retain to the end a price higher than *the* equilibrium price. The price at which the market

closed would be *an* equilibrium price, but not *the* equilibrium price.

Conversely if the market had opened much to the disadvantage of the sellers and they had sold some corn very cheap, so that they remained in great want of ready money, the final utility of money to them might have remained so high that they would have gone on selling considerably below 36*s.* until the buyers had been supplied with all that they cared to take. The market would then close without the true equilibrium price having ever been reached.

but in a labour market the exceptions are often important.

Such cases are rare and unimportant in markets for commodities; but in markets for labour they are frequent and important. When a workman is in fear of hunger, the marginal utility of money to him is very high; and if at starting he gets the worst of the bargaining, and is employed at low wages, it remains high, and he may go on selling his labour at a low rate. This is all the more probable because, while the advantage in bargaining is likely to be pretty well distributed between the two sides of a market for commodities, it is more often on the side of the buyers than on that of the sellers in a market for labour.

This difference has important results in theory and in practice;

In such facts as these we shall find, as we go on, the explanation of much of that instinctive objection which the working classes have felt to the habit of some economists, particularly those of the employer class, of treating labour simply as a commodity and regarding the labour market as like every other market; whereas in fact the differences between the two cases, though not fundamental from the point of view of theory, are yet clearly marked, and in practice often very important.

on which some light is thrown by the study of barter in the following Note.

The theory of buying and selling becomes much more complex when we take account of the dependence of marginal utility on amount in the case of money as well as of the commodity itself. When we do this we are really reverting to the problem of barter, in which the changes in the marginal utilities of both commodities are of course prominent. As we have remarked, barter, though earlier historically than buying and selling, is really a more complex transaction: and the theory of it is curious rather than important. Some account

of it is given in the adjoining Note, chiefly with a view of throwing additional light on the exceptional cases which we have just been considering.

NOTE ON BARTER.

Let us consider the case of two individuals engaged in barter. *A* has, say a basket of apples, *B* a basket of nuts; *A* wants some nuts, *B* wants some apples. The satisfaction which *B* would get from one apple would perhaps out-weigh that which he would lose by parting with 12 nuts; while the satisfaction which *A* would get from perhaps three nuts would out-weigh that which he would lose by parting with one apple. The exchange will be started somewhere between these two rates: but if it goes on gradually, every apple that *A* loses will increase the marginal utility of apples to him and make him more unwilling to part with any more: while every additional nut that he gets will lower the marginal utility of nuts to him and diminish his eagerness for more: and vice versâ with *B*. At last *A*'s eagerness for nuts relatively to apples will no longer exceed *B*'s; and exchange will cease because any terms that the one is willing to propose would be disadvantageous to the other. Up to this point exchange has increased the satisfaction on both sides, but it can do so no further. Equilibrium has been attained; but really it is not *the* equilibrium, it is *an* accidental equilibrium.

There is however one equilibrium which has some sort of right to be called the true equilibrium because if once hit upon, it would be adhered to throughout. It is clear that if very many nuts were to be given throughout for an apple, *B* would be willing to do but little business; while if but very few were to be given *A* would be willing to do but little. There must be some intermediate rate at which they would be willing to do business to the same extent. Suppose this rate is six nuts for an apple; and *A* is willing to give eight apples for 48 nuts, while *B* is willing to receive eight apples at that rate; but that *A* would not be willing to give a ninth apple for another six nuts while *B* would not be willing to give another six nuts for a ninth apple. This is then the true position of equilibrium; but there is no reason to suppose that it will be reached in practice.

Suppose for instance that *A*'s basket had originally 20 apples in it and *B*'s 100 nuts, and that *A* at starting induced *B* to believe that he does not care much to have any nuts; and so manages to barter four apples for 40 nuts, and afterwards two more for 17 nuts, and afterwards one more for eight. Equilibrium may now have been reached, there may be no further exchange which is advantageous to both. *A* has 65 nuts and does not care to give another apple even for eight,

while *B* having only 35 nuts, sets a high value on them, and will not give as many as eight for another apple.

On the other hand if *B* had been the more skilful in bargaining he might have perhaps induced *A* to give six apples for 15 nuts, and then two more for seven. He has now given up eight apples and got 22 nuts: if the terms at starting had been six nuts for an apple and he had got 48 nuts for his eight apples, he would not have given up another apple for even seven nuts; but having so few nuts he is anxious to get more and is willing to give two more apples in exchange for eight nuts, and then two more for nine nuts, and then one more for five; and then again equilibrium may be reached; for *B*, having 13 apples and 56 nuts, does not perhaps care to give more than five nuts for an apple, and *A* may be unwilling to give up one of his few remaining apples for less than six.

In both these cases the exchange would have increased the satisfaction of both as far as it went; and when it ceased, no further exchange would have been possible which would not have diminished the satisfaction of at least one of them. In each case an equilibrium would have been reached; but it would be an arbitrary equilibrium.

Next suppose that there are a hundred people in a similar position to that of *A*, each with about 20 apples, and the same desire for nuts as *A*; and an equal number on the other side similarly situated to the original *B*. Then the acutest bargainers in the market would probably be some of them on *A*'s side, some of them on *B*'s; and whether there was free communication throughout the market or not, the mean of the bargains would not be so likely to differ very widely from the rate of six nuts for an apple as in the case of barter between two people. But yet there would be no such strong probability of its adhering very closely to that rate as we saw was the case in the corn market. It would be quite possible for those on the *A* side to get in varying degrees the better of those on the *B* side in bargaining, so that after a time 6500 nuts might have been exchanged for 700 apples; and then those on the *A* side, having so many nuts, might be unwilling to do any more trade except at the rate of at least eight nuts for an apple, while those on the *B* side, having only 35 nuts apiece left on the average, might probably refuse to part with any more at that rate. On the other hand the *B*'s might have got in various degrees the better of the *A*'s in bargaining, with the result that after a time 1300 apples had been exchanged for only 4400 nuts: the *B*'s having then 1300 apples and 5600 nuts, might be unwilling to offer more than five nuts for an apple, while the *A*'s, having only seven apples apiece left on the average, might decline that rate. In the one case equilibrium would be found at a rate of eight nuts for an apple, and in the other at the rate of five nuts. In each case *an* equilibrium would be attained, but not *the* equilibrium.

This uncertainty of the ultimate position of equilibrium does not

depend on the fact that one commodity is being bartered for another instead of being sold for money. It results from our being obliged to regard the marginal utilities of both commodities as varying. And indeed if we had supposed that it was a nut-growing district, and that all the traders on both sides had large stores of nuts, while only the *A*'s had apples, then the exchange of a few handfuls of nuts would not visibly affect their stores, or change appreciably the marginal utility of nuts. In that case the bargaining would resemble in all fundamentals the buying and selling in an ordinary corn market. The real distinction then between the theory of buying and selling and that of barter is that in the former it generally is, and in the latter it generally is not, right to assume that the marginal utility of one of the things dealt with is practically constant.

It may be objected that in a nut country, nuts would perhaps be used almost as money; and that in fact this is almost implied in the case just discussed. No doubt it is so: and here we find an illustration of the general rule that if a commodity is in general use, under such conditions that its final utility to anyone who takes or gives it in exchange is not much affected by small transactions in it, then that commodity is so far well suited to act as a medium of exchange, and discharge the simpler functions of money for the small business of a primitive community.

CHAPTER III.

EQUILIBRIUM OF NORMAL DEMAND AND SUPPLY.

Nearly all dealings in commodities that are not very perishable, are affected by calculations of the future;

§ 1. EVEN in the corn exchange of a country town on a market-day the equilibrium price is affected by calculations of the future relations of production and consumption; while in the leading corn markets of America and Europe dealings for future delivery already predominate and are rapidly weaving into one web all the leading threads of trade in corn throughout the whole world. Some of these dealings in "futures" are but incidents in speculative manœuvres; but in the main they are governed by calculations of the world's consumption on the one hand, and of the existing stocks and coming harvests in the Northern and Southern hemispheres on the other: they take account of the areas sown with each kind of grain, of the forwardness and weight of the crops, and of the supply of things which can be used as substitutes for corn, and of the things for which corn can be used as a substitute. Thus, when buying or selling barley, they would have to take account of the supplies of such things as sugar, which can be used as substitutes for it in brewing, and again of all the various feeding stuffs, a scarcity of which might raise the value of barley for consumption on the farm. If it is thought that the growers of any kind of grain in any part of the world have been losing money, and are likely to sow a less area for a future harvest, it is argued that prices are likely to rise as soon as that harvest comes into sight; anticipations of that rise will

exercise an influence on present sales for future delivery and that in its turn influences cash prices; so that these prices are indirectly affected by estimates of the expenses of producing further supplies.

and we are now to consider slow and gradual adjustments of supply and demand.

But in this and the following chapters we are specially concerned with movements of price ranging over still longer periods than those for which the most far-sighted dealers in futures generally make their reckoning: we have to consider the volume of production adjusting itself to the conditions of the market, and the normal price being thus determined at the position of stable equilibrium of normal demand and normal supply.

In this discussion we shall have to make frequent use of the terms "Cost" and "Expenses" of production; and some provisional account of them must be given before proceeding further.

The account of supply price carried a little further.

§ 2. We may take up the discussion of the analogy between the supply price and the demand price of a commodity at the point at which we left it when saying "If for the moment we assumed that the efficiency of production depended solely upon the exertions of the workers, the price required to call forth the exertion necessary for producing any given amount of a commodity might be called the supply price for that amount."[1] But now we have to take account of the fact that the production of a commodity generally requires many different kinds of labour and the use of capital in many forms. The exertions of all the different kinds of labour that are directly or indirectly involved in making it; together with the abstinences or rather the waitings required for saving the capital used in making it: all these efforts and sacrifices together will be called the REAL COST OF PRODUCTION of the commodity. The prices that have to be paid for these efforts and sacrifices will be called either its MONEY COST OF PRODUCTION, or, for shortness, its EXPENSES OF PRODUCTION; they are the prices which have to be paid in order to call forth an adequate supply of the efforts and waitings that are required

Real and Money Cost of production.

Expenses of production.

[1] Book IV. Ch. I, § 1.

for making it; or, in other words, they are its supply price[1].

The analysis of the Expenses of Production of a commodity might be carried backward to any length; but it is seldom worth while to go back very far. It is for instance often sufficient to take the supply prices of the different kinds of raw material used in any manufacture as ultimate facts, without analysing these supply prices into the several elements of which they are composed; otherwise indeed the analysis would never end. We may then arrange the things that are required for making a commodity into whatever groups are convenient, and call them its FACTORS OF PRODUCTION. Its expenses of production when any given amount of it is produced are thus the supply prices of the corresponding quantities of its factors of production. And the sum of these is the supply price of that amount of the commodity.

Factors of production.

There is great variety in the relative importance of different elements of Cost of Production.

§ 3. The typical modern market is often regarded as that in which manufacturers sell goods to wholesale dealers at prices into which but few trading expenses enter. But taking a broader view we may consider that the supply price of a commodity is the price at which it will be delivered for sale to that group of persons whose demand for it we are considering; or, in other words, in the market which we have in view. On the character of that market will depend how many trading expenses have to be reckoned to make up the supply price[2]. For instance the supply price of

[1] Mill and some other economists have followed the practice of ordinary life in using the term Cost of Production in two senses, sometimes to signify the difficulty of producing a thing, and sometimes to express the outlay of money that has to be incurred in order to induce people to overcome this difficulty and produce it. But by passing from one use of the term to the other without giving explicit warning, they have led to many misunderstandings and much barren controversy. The attack on Mill's doctrine of Cost of Production in relation to Value, which is made in Cairnes' *Leading Principles*, was published just after Mill's death; and unfortunately his interpretation of Mill's words was generally accepted as authoritative, because he was regarded as a follower of Mill. But in an article by the present writer on "Mill's Theory of Value" (*Fortnightly Review*, April 1876) it is argued that Cairnes had mistaken Mill's meaning and had really seen not more but less of the truth than Mill had done.

[2] We have already (Book II. Ch. III.) noticed that the economic use of the term "production" includes the production of new utilities by moving a thing from a

wood in the neighbourhood of Canadian forests often consists almost exclusively of the price of the labour of lumber men: but the supply price of Canadian deal in the wholesale London market consists in a large measure of freights; while the supply price of the same wood to a small retail buyer in an English country town is more than half made up of the charges of the railways and middlemen who have brought what he wants to his doors, and keep a stock of it ready for him. Again the supply price of a certain kind of labour may for some purposes be analysed into the expenses of rearing, of general education and of special trade education. The possible combinations are numberless; and though each may have incidents of its own which will require separate treatment in the complete solution of any problem connected with it, yet at this stage of our inquiry all such incidents may be ignored, so far as the reasonings of this Book are concerned.

The amount of each factor of production the price of which enters into the supply price of a unit of the finished commodity is not fixed, but liable to be altered by changes in the volume of production.

In calculating the expenses of production of a commodity we must take account of the fact that changes in the amounts produced are likely, even when there is no new invention, to be accompanied by changes in the relative quantities of its several factors of production. For instance, when the scale of production increases, horse or steam power is likely to be substituted for manual labour; materials are likely to be brought from a greater distance and in greater quantities, thus increasing those expenses of production which correspond to the work of carriers, middlemen and traders of all kinds.

The Law of Substitution.

It is to be taken for granted that as far as the knowledge and business enterprise of the producers reaches, they will in each case choose those factors of production which are best for their purpose. The sum of the supply prices of those factors which are used is, as a rule, less than the sum of the supply prices of any other set of factors which could be substituted for them. Whenever it appears to the producers that this is not the case, they will, as a rule, set to work to substitute the less expensive method. We may call this, for convenience of reference, THE LAW OF SUBSTITUTION.

place in which it is less wanted to a place in which it is more wanted, or by helping consumers to satisfy their needs.

The position from which we start.

We assume free play for demand and supply in the market.

§ 4. The position then is this: we are investigating the equilibrium of normal demand and normal supply in their most general form; we are neglecting those features which are special to particular parts of economic science, and are confining our attention to those broad relations which are common to nearly the whole of it. Thus we assume that the forces of demand and supply have free play in a perfect market; there is no combination among dealers on either side, but each acts for himself: and there is *free competition;* that is, buyers compete freely with buyers, and sellers compete freely with sellers. But though everyone acts for himself, his knowledge of what others are doing is supposed to be sufficient to prevent him from taking a lower or paying a higher price than others are doing; and this is assumed to be true both of finished goods and of their factors of production. In particular it is assumed provisionally to be true of the hire of labour and of the borrowing of capital. We have already inquired to some extent, and we shall have to inquire further, how far these assumptions are in accordance with the actual facts of life. But meanwhile this is the supposition on which we proceed; we assume that there is only one price in the market at one and the same time; it being understood that separate allowance is made, when necessary, for differences in the expense of delivering goods to dealers in different parts of the market; including, if it is a retail market, allowance for the special expenses of retailing.

In such a market there is a definite demand price for each amount of the commodity, that is a definite price at which each particular amount of the commodity can find purchasers in a unit of time; and in like way there is a definite supply price, that is a definite price which will call forth a supply of each particular amount in a unit of time.

The unit of time may be chosen according to the circumstances of each particular problem: it may be a day, a month, a year, or even a generation: but in every case it must be short relatively to the whole period of the market the equilibrium of which is being investigated. It is to be

assumed that the general circumstances of the market remain unchanged throughout this period; that there is, for instance, no change in fashion or taste, no new substitute which might affect the demand, no new invention to disturb the supply; so that the demand and supply schedules remain unchanged throughout the whole period.

The law of the demand schedule.

The circumstances which determine the demand-price for any given amount of the commodity, vary in character from one problem to another. But in every case the more of a thing is offered for sale in a market the lower is the price at which it will find purchasers; or in other words the demand price for each unit diminishes with every increase in the amount offered.

The law of the supply schedule.

The law of supply is less definite. At all events when the period for which the normal supply price is reckoned is very long[1], the supply of some of the factors of production of the commodity will probably conform to the Law of Diminishing, and that of others to the Law of Increasing Return. The net result of adding together the supply prices of the factors may be either that the supply of the commodity on the whole conforms to the Law of Diminishing Return, in which case the supply price for each unit will rise as the amount increases; or that the supply of the commodity on the whole conforms to the Law of Increasing Return, in which case the supply price for each unit will fall as the amount produced increases; or lastly it is even possible that the supply price may alternately rise and fall as the amount produced increases. In every case however it is true that an increase in the amount produced involves an increase in the aggregate expenses of production[2].

What is meant by equilibrium.

§ 5. When the amount produced (in a unit of time) is such that the demand price is greater than the supply price, then sellers receive more than is sufficient to make it worth their while to bring goods to market to that amount; and there is at work an active force tending to increase the amount

[1] The full reasons for this provision will be seen more clearly in the next chapter.

[2] This last term involves difficulties which will be noticed in Ch. v. of the present Book, and again in Book VI.

brought forward for sale. On the other hand, when the amount produced is such that the demand price is less than the supply price, sellers receive less than is sufficient to make it worth their while to bring goods to market on that scale; so that those who were just on the margin of doubt as to whether to go on producing are decided not to do so, and there is an active force at work tending to diminish the amount brought forward for sale. When the demand price is equal to the supply price, the amount produced has no tendency either to be increased or to be diminished; it is in equilibrium.

Equilibrium-amount and *equilibrium-price.*

When demand and supply are in equilibrium, the amount of the commodity which is being produced in a unit of time may be called the EQUILIBRIUM-AMOUNT and the price at which it is being sold may be called the EQUILIBRIUM-PRICE.

Stable equilibria,

the conditions under which they occur.

The only equilibria of any practical importance are STABLE EQUILIBRIA, that is, are such that if the price is displaced a little from one of them it will tend to return, as a pendulum oscillates about its lowest point; and it will be found to be a characteristic of stable equilibria that in them the demand price is greater than the supply price for amounts just less than the equilibrium amount, and *vice versâ*. For when the demand price is greater than the supply price, the amount produced tends to increase; and therefore, if the demand price is greater than the supply price for amounts just less than an equilibrium amount, then if the scale of production is temporarily diminished somewhat below that equilibrium position, it will tend to return; thus the equilibrium is stable for displacements in that direction. If the demand price is greater than the supply price for amounts just less than the equilibrium amount, it is sure to be less than the supply price for amounts just greater: and therefore, if the scale of production is somewhat increased beyond the equilibrium position, it will tend to return; and the equilibrium will be stable for displacements in that direction also.

Oscillations about a position of stable

When demand and supply are in stable equilibrium, if any accident should move the scale of production from its equilibrium position, there will be instantly brought into

equilibrium

play forces tending to bring it back to that position; just as, if a stone hanging by a string is displaced from its equilibrium position, the force of gravity will at once tend to bring it back to its equilibrium position. If the stone is allowed to fall freely it will move back to its equilibrium position, pass through it, return again through it, and after several rhythmical oscillations be gradually reduced to rest by the resistance of the air. The oscillations of the scale of production about its position of equilibrium will be of a somewhat similar kind. If all the general conditions of the market, other than the original disturbance, the effects of which we are tracing, remain unchanged sufficiently long, it will be brought to rest in its position of equilibrium by the friction which its surroundings oppose to its continued movement; and meanwhile the price of the commodity will have been oscillating in like manner about its equilibrium position and will come to rest when the scale of production comes to its position of rest.

are seldom rhythmical.

But in real life such oscillations are seldom as rhythmical as those of a stone hanging freely from a string; the comparison would be more exact if the string were supposed to hang in the troubled waters of a mill-race, whose stream was at one time allowed to flow freely, and at another partially cut off. The demand and supply schedules do not in practice remain unchanged for a long time together, but are constantly being changed; and every change in them alters the equilibrium amount and the equilibrium price, and thus gives new positions to the centres about which the amount and the price tend to oscillate. These considerations point to the great importance of the element of Time in relation to demand and supply, to the study of which we now proceed.

CHAPTER IV.

EQUILIBRIUM OF NORMAL DEMAND AND SUPPLY, CONTINUED. THE TERM NORMAL WITH REFERENCE TO LONG AND SHORT PERIODS.

The economic use of the term market is wide as to space and still wider as to time, so that normal conditions may be able to assert themselves.

§ 1. IT has already been noticed that in economic phrase a *market* is the whole of any district in which trade intercourse is so far free that prices tend to adjust themselves to one level easily and quickly; and that, what is even more important for our immediate purpose, the use of the term is as elastic with regard to time as it is with regard to space. The dealings in a market, in the discussion on which we are now entering, are to be taken as ranging over a sufficiently long period of time for the conditions of normal demand and normal supply freely to act, and freely to react on one another.

The periods required for this purpose are different in different cases.

The length of the period required for this purpose is different in different cases; but in every case it must be sufficiently long to cover over the effects of minor disturbances and passing fluctuations; it must be long enough to allow the economic forces concerned to work themselves out with some approach to regularity and law[1]. The period may be very short if we are considering the price of some trivial article of dress which comes suddenly into fashion, the production of which requires no specialized machinery or skill, and occupies but a small part of the

[1] The reader is here referred to the account of the term Normal given in Book I. Ch. VII. § 1.

material and labour that are commonly used by the trades which produce it. A longer period is wanted if we are considering the normal price, say, of wool in London; it being understood that the existing general distribution of sheep-farms all the world over is to be the basis of the calculation; and that such events as drought in Australia, and the raising of wool-freights by combinations among shippers are to be regarded as disturbing causes, the influence of which is to be eliminated in finding the normal price. A still longer period is wanted if we are considering the causes that determine in the long run the wages of shepherds in Australia, or the gradual changes in the rate at which money can be let on good mortgages there: and so on.

This elastic use of the term Normal is consistent with ordinary usage.

There is thus great elasticity in the scope which we assign to a market and in the range of the forces of whose action we take account: and in each separate application of our general reasoning a clear indication has to be given as to what conditions are taken as fixed and what as variable, and as to the length of the period to which the whole inquiry relates. This is indeed done more or less systematically in the ordinary conversation of business life. When it is said that the price of wool on a certain day was abnormally high though the average price for the year was abnormally low, that the wages of coal-miners were abnormally high in 1872 and abnormally low in 1879, that the (real) wages of labour were abnormally high at the end of the fourteenth century and abnormally low in the middle of the sixteenth, everyone understands that the scope of the term normal is not the same in these various cases: everyone takes the context as itself an informal interpretation clause indicating the special use of the term in each several case.

An illustration drawn from a common type of business calculations.

§ 2. We may find an illustration of this every-day use of the term "normal" which will help us on our way to a clear notion of a normal supply price. Let us suppose that a person conversant with the woollen trade sets himself to calculate whether a factory could afford to turn out, say, a million yards annually of a certain kind of cloth at a price of 5*s*. For simplicity it may be taken that the whole process of making the cloth is conducted in the factory and

Use of the term Normal in ordinary business.

that nothing else is done there. He would have to reckon (i) the price of the wool, coal, and other materials which would be used up in making it, (ii) wear and tear and depreciation of the buildings, machinery and other fixed capital, (iii) interest and insurance on all the capital, (iv) the wages of those who work in the factory, and (v) the earnings of management and insurance against loss of those who undertake the risks, who engineer and superintend the working of the factory[1]. He would estimate the supply prices of all these different factors of production of the cloth with reference to the amounts of each of them that would be wanted, and on the supposition in the first instance that the conditions of supply would be "normal"; and he would give to this term a wider or narrower range according as he was looking more or less far ahead. Thus in estimating the wages required to call forth an adequate supply of labour to work a certain class of looms, he might take the current wages of similar work in the neighbourhood of the factory: or he might argue that there was a scarcity of that particular class of labour in the neighbourhood, that its current wages there were higher than in other parts of England, and that looking forward over several years so as to allow for immigration, he might take the normal rate of wages at a rather lower rate than that prevailing there at the time. Or lastly he might think that the wages of weavers all over the country were abnormally low relatively to others of the same grade, in consequence of a too sanguine view having been taken of the prospects of the trade half a generation ago. He might argue that this branch of work was overcrowded, that parents had begun to choose other trades for their children which offered greater net advantages and yet were not more difficult; that in consequence a few years would see a falling off in the supply of labour suited for his purpose; so that looking forward to a long life for the factory he must take normal wages at a rate rather higher than the

[1] We need not trouble ourselves to consider just here whether the ground-rent of the factory must be put into a class by itself: this belongs to a group of questions which will be discussed in Book VI. We are also taking no notice of rates and taxes, for which he would of course have to make his account.

present average. (There are indeed not many occasions on which the calculations of a business man for practical purposes need to look forward so far, and to extend the range of the term "normal" over a whole generation: but in the broader applications of economic science it is sometimes necessary to extend the range even further, and to take account of the slow changes that in the course of centuries affect the supply price of the labour of each industrial grade.)

Use of the term Normal in ordinary business.

Again in estimating the normal supply price of wool, he would probably take the average of past years, making an allowance however for any probable change in the causes likely to affect the supply in the immediate future. He would probably reckon for the effect of such droughts as from time to time occur in Australia and elsewhere; since their occurrence is too common to be regarded as abnormal: but he would probably not allow here for the chance of our being involved in a great war, by which the Australian supplies might be cut off; he would consider that any allowance for this should come under the head of extraordinary trade risks, and not enter into his estimate of the normal supply price of wool.

He would deal in the same way with the risk of civil tumult or any violent and long-continued disturbance of the labour market of an unusual character; but in his estimate of the amount of work that could be got out of the machinery, &c. under normal conditions, he would probably reckon for minor interruptions from trade disputes such as are continually occurring, and are therefore to be regarded as belonging to the regular course of events, that is as not abnormal.

It may allow for motives that are not self-regarding.

In all these calculations he would not concern himself specially to inquire how far mankind are under the exclusive influence of selfish or self-regarding motives. He might be aware that anger and vanity, jealousy and offended dignity are at least as common causes of strikes and lockouts, as the desire for pecuniary gain: but that would not enter into his calculations; all that he would want to know about them would be whether they acted with sufficient regularity for him to be able to make a reasonably good allowance for

their influence in causing interruptions of work and increasing the normal supply price of the goods.

Thus the use of the term Normal in ordinary business is as elastic as it is required to be for our purposes.

The formal language of economics is thus in harmony with the practice of business in leaving the interpretation of the term Normal in relation to demand and supply almost entirely to the context of the passage in which it occurs. By itself the term Normal Supply Price means nothing more than a supply price, the determining causes of which are so far regular in their action that general statements can be made about it, which are at once trustworthy and fairly definite. In ordinary conversation indeed a formal interpretation clause is seldom necessary, because misunderstandings can there be nipped in the bud by question and answer; and though it is more often required in written arguments which have not that safeguard, yet even there it will be found that in the large majority of cases the context explains itself so clearly as to leave no room for doubt. Thus the difficulty arising from the elastic use of the term Normal need not be a serious one, if it is fairly faced: while on the other hand much confusion and fruitless controversy have arisen from ignoring it.

Studies of the equilibrium of normal demand and supply may be divided into two classes as the periods to which they relate are long or comparatively short.

§ 3. But though applications of the term Normal are thus elastic, and capable of being extended gradually from very short to very long periods; yet we shall find, as we go on, that these periods may be divided roughly into two classes according as the problems with which we are dealing do or do not range over very long periods. In the first class there is time for the supply of those things which are used in producing the commodity, (or in other words, its factors of production), to adapt itself to the demand; in the second class there is not. The relation which this first class of normal equilibria bears to the second may be made clearer by observing that it is similar to the relation which this second class bears to the temporary equilibria discussed in the last chapter; for in that case the periods over which we were studying the action of the forces of demand and supply were so short, that cost of production could not exercise any direct influence over the supply price.

For instance, on the day following a large catch of

mackerel the price in the market may settle down after a little manœuvring to an equilibrium level at as many pence as it had been at shillings on the previous day; and this change will in no way depend on the normal cost of catching mackerel, it will be governed by the volume of the past catch, with perhaps some slight reference to the chance that a similar catch may be had on the morrow.

Illustration from fish markets. Temporary equilibrium.

But next suppose there to be great increase in the general demand for fish, such for instance as might arise from the spreading of a disease through all kinds of farm stock simultaneously, by which meat was made a dear and dangerous food. The increased demand for fish could be met only by bringing into the fishing trade people from outside, who were not fitted by training to do its work well, and to whom many of its ordinary incidents would prove great hardships. Old and unsuitable boats would be pressed into the service; there would be great waste of labour before the fish were brought to shore[1]. For a year or two the normal price of fish would therefore be much higher than before. Variations in the catch of fish from day to day might make the market price oscillate at least as violently as before about the normal level, but the normal supply price for an increased amount would rise rapidly with every such increase. The normal price we have just been speaking of, is a *short-period* normal supply price; and if we turn to consider the *long-period* normal supply price, we shall find that it is determined by a different set of causes, and with different results.

Short period normal demand and supply in equilibrium.

For suppose that the disuse of meat causes a permanent distaste for it, and that an increased demand for fish continues long enough to enable the forces by which its supply is governed to work out their action fully. The source of supply in the sea might perhaps show signs of exhaustion, and the fishermen might have to resort to more distant coasts and to deeper waters, Nature giving a Diminishing

Long-period normal demand and supply in equilibrium.

[1] And there would be a further waste before the fish reached the ultimate consumers, because the existing organization of the inland trade in fish would be insufficient for its work. It has already been remarked that there is no reason why we should not include, where it is convenient to do so, as part of the "production" of fish, the work of those who distribute it overland as well as that of the fishermen who take it out of the sea. (Book II. Ch. III. § 1.)

Return to the increased application of capital and labour of a given order of efficiency. On the other hand those might turn out to be right who think that man is responsible for but a very small part of the destruction of fish that is constantly going on[1]; and in that case a boat starting with equally good appliances and an equally efficient crew would be likely to get nearly as good a haul after the increase in the total volume of the fishing trade as before. In any case the normal Real Cost and therefore (the general purchasing power of money being assumed stationary) the normal Money Cost of equipping a good boat with an efficient crew would certainly not be higher, and would probably be a little lower after the trade had settled down to its now increased dimensions than before. For since fishermen require only trained aptitudes, and not any exceptional natural qualities, their number could be increased in less than a generation, to almost any extent that was necessary to meet the demand; while the industries connected with building boats, making nets &c. being now on a larger scale would be organized more thoroughly and economically. If therefore the waters of the sea showed no signs of depletion of fish, an increased supply could be produced at a lower price after a time sufficiently long to enable the normal action of economic causes to work itself out: and, the term Normal being taken to refer to a long period of time, the normal price of fish would decrease with an increase in the amount produced[2].

The contrast is most clearly marked

§ 4. This contrast between the movements of long-period and short-period normal supply prices is of course strongest in the case of manufactures, or at least such of

[1] Comp. Book IV. Ch. III. § 7.

[2] We are speaking in the text of the price of the fish when brought to land: but the cost of getting fish from the hands of the fisherman to those of the retailer is much greater in proportion than it would be if the traffic were larger, with more special fish trains, more large ice depots and so on; for at present the retailer's profits on his turnover are necessarily at a high rate because as a rule he can sell but few fish in the course of a day. If his neighbours bought more largely, he could sell, and by competition would be compelled to sell at a price much nearer that which he paid. The normal retail price (the term normal having reference to a long period of time), would decrease much more rapidly than the wholesale price with every increase in the aggregate production.

them as are not yet very highly organized. For instance if a sudden fashion were to set in for wearing watch-shaped aneroid barometers, highly paid labour that had no special training for the work would have to be drawn in from other trades, there would be a good deal of wasted effort and for a time the Real and the Money Cost of production would be increased; the short-period normal supply price would rise with an increase in the amount produced, and the actual selling price might oscillate in the wholesale market for a time about a "normal" level higher than that which had prevailed before. But independently of any new invention in the cost of making aneroids, production on a large scale would quickly develop great economies. For specialized skill in abundance would shortly be forthcoming and properly graduated to the various work to be done: and with a large use of the method of Interchangeable Parts, specialized machinery would do better and more cheaply much of the work that is now done by hand. We are therefore justified in concluding that a great increase in the annual out-put of watch-shaped aneroids, will lower very much their supply price provided only time is allowed for that development of industrial organization which normally belongs to a large scale of production; and this conclusion does not involve the assumption that any substantive new invention would be made in the process of manufacture.

in the case of manufacturers' commodities.

§ 5. As we shall presently see more clearly, it is important to remember that when endeavouring to observe the normal supply price we must take care to select a business which is managed with normal ability; and by normal ability is of course meant not the ability of the average man, but the ability that is normally to be expected of those in the responsible position of undertakers and managers of a business of the kind in question, whether it be a private or a joint stock or a co-operative business. We shall find that it is necessary to take great care to avoid all ambiguity on this point.

We must select as representative a business which is managed with normal ability; and so as to get its fair share of the economies resulting from industrial organization.

The business which we are observing must also be able to obtain its fair share of benefit from those economies of production both in the internal arrangements of the factory

and in its external, which arise out of the aggregate scale of production of the commodity in the district. The relation between the internal and external economies of a factory or other productive establishment was discussed carefully at the end of the last Book, partly with a view to this difficulty; and we may here revert to the conclusion reached there.

We have seen that these economies, whether they are internal or external, fluctuate with the fortunes of particular businesses;

We concluded that though many of the economies arising from an increase in the aggregate scale of production of a commodity are not within the reach of a small business; yet the gradual increase in the aggregate production increases the facilities for starting a business on a comparatively large scale, and increases therefore, other things being equal, the economies both internal and external which are within the reach of those who are on the point of applying additional capital and labour to extend yet a little further the total production. At any particular moment in any branch of manufacture some businesses will be rising and others falling; some undertakers will be doubting whether to start new factories, others whether to enlarge existing factories, and to provide them with better appliances; while others again feeling themselves behind the age, finding by experience that the equipment and the internal organization of their factories will hardly enable them to sell at current prices and make a profit, will be tending to diminish their average out-put, or perhaps breaking down altogether.

but when viewed broadly are seen to increase generally when the aggregate production increases.

But when we are taking a broad view of the causes which determine normal supply price, we need not trouble ourselves with these eddies on the surface of the great tide. Such eddies will always exist, and occasionally play an important part in the history of a particular trade; the recent histories of the manufactures of silk, of watches, and of agricultural implements, and again of the shipbuilding, the sugar refining and the chemical industries afford examples of the way in which the energy or the incompetence of a few business men may exert a powerful influence on the development of a great trade in one place and its decadence in another. But significant as such facts are for some purposes, they do not concern us just now; because looking, as we are now, at

broad results only, we have no reason to believe that the eddy at any particular time will be moving in one direction rather than another. Any particular increment of production may be due to some new manufacturer who is struggling against difficulties, working with insufficient capital, and enduring great privations in the hope that he may gradually build up a good business[1]; or it may be due to some wealthy firm which by enlarging its premises is enabled to attain new economies altogether out of proportion to the small fraction that the extension of its particular business adds to the aggregate volume of production in its trade.

We may conclude then that in industries which on the whole conform to the Law of Increasing Return, the marginal supply price, the price which is just sufficient to secure the production of that part of the supply as to which people are in doubt whether they will produce it at all, will be lower when the aggregate production is large than when it is small, provided the change is slow; or, in other words, provided the price for which we are looking is the long-period normal supply price.

The distinction between long-period and short-period normal supply prices further considered.

§ 6. We may then repeat that the term *long-period* normal supply price indicates the supply price estimated for a period sufficiently long to enable the economic causes concerned to work out their chief normal effects: and the supply-price so estimated has a special right to be regarded as *the* normal supply price. We may contrast with it that *short-period* normal supply price (or more briefly the *subnormal* supply price), which is estimated for periods too brief to enable the broader movements of industrial organization to work themselves out. In the former case there is, and in the latter there is not, time enough to enable the supply of the factors of production of the commodity to be adjusted to the amount of it which has to be produced.

[1] Land on the theoretical margin of cultivation is land that will just pay for the expenses of cultivating it when in the hands of a farmer of normal ability, his normal remuneration being included in the expenses of production. But in fact much land is cultivated which from its position or other cause gives less than this return. We shall return to this subject when discussing agricultural rent and land tenure.

Its general character is well marked;

In "long periods" the supply of specialized skill and ability, of suitable machinery and other material capital, and of the appropriate industrial organization has time to be adapted to demand. But in "short periods" the supply of them has to be taken very much for granted; the producers have to adjust their supply to the demand as best they can with the appliances already at their disposal; on the one hand there is not time materially to increase those appliances if the supply of them is deficient; and on the other, if the supply is excessive, some of them must remain imperfectly employed, there is not time for the supply to be much reduced by gradual decay, and by conversion to other uses.

but it has no sharpness of outline.

Of course there is no hard and sharp line of division between the two cases. Nature has drawn no such lines in the economic conditions of actual life; and in dealing with practical problems they are not wanted. Just as we contrast civilized with uncivilized races, and establish many general propositions about either group, though no hard and fast division can be drawn between the two; so we contrast long and short periods without attempting any rigid demarcation between them. If it is necessary for the purposes of any particular argument to divide one case sharply from the other, it can be done by a special interpretation clause: but the occasions on which this is necessary are neither frequent nor important[1].

The long period or true

In those broad inquiries which will occupy the remainder of this and the following Book, we shall be concerned almost

[1] Compare Book II. Ch. I. Of course the period required to adapt the factors of production to the demand vary much; the number of skilled compositors for instance, cannot be increased nearly as fast as the supply of type and printing presses. And this cause alone would prevent any rigid division being made between long and short periods. But in fact a theoretically perfect long period must give time enough to enable not only the factors of production of the commodity to be adjusted to the demand, but also the factors of production of those factors of production to be adjusted and so on. And when carried to its logical consequences, this will be found to involve the supposition of a stationary state of industry, in which the requirements of a future age can be anticipated an indefinite time beforehand. Some such assumption is really contained in many popular renderings of Ricardo's doctrines, which give them a sharpness of outline that he had never intended. (See the first foot note on p. 63.)

exclusively with the true normal equilibria: but when at a later stage we come to consider the quickly moving oscillations of trade and commerce, the subnormal equilibria will claim more of our attention.

normal supply-prices are of chief importance here.

Here then we may pause. There are many difficulties relating to supply price yet to be considered. But enough has been said to justify the statement that though the short-period normal supply price almost always increases in consequence of an increase in the amount produced; the long-period or true normal supply price obeys no such simple rule. For in some cases it is diminished, and in others it is increased by an increase in the aggregate scale of production; while in others again it is practically constant in spite of great changes in that scale.

There is no strictly parallel distinction in the case of Demand; but there also the effect may lag behind its cause.

There is nothing in the causes determining normal demand which corresponds exactly to this broad distinction between the causes that determine long-period and short-period normal supply prices respectively. But when discussing the Law of Demand we noticed how long a time may be required to enable an economic cause to produce its full effects; and how a change in demand price often lags much behind the change by which it was really caused. The difficulties to which this fact gives rise, together with the corresponding difficulties relating to supply, make themselves felt in most economic problems: but they are especially troublesome when an attempt is made to represent the theory of equilibrium of demand and supply in its most general form and with quasi-mathematical exactness; and we shall have to consider them carefully in the next chapter.

There are two plans, each of which has its own advantages, for representing the relations in which quickly passing fluctua-

§ 7. It has already been indicated, and as we go further we shall see more clearly that there are two ways of treating changes in demand and supply, each of which has advantages that make it the more convenient for certain purposes. On the one plan we ignore all disturbances that pass quickly, and consider only the general relations of demand and supply over very long periods; we sacrifice some precision of detail for the sake of being able to take at one glance a broad and comprehensive survey of the ultimate tendencies under dis-

tions stand to secular changes.

cussion. On the other plan[1] we confine our attention in the first instance to those changes which can develop themselves in comparatively short periods, and reason for the while as though those things which move slowly were really stationary. Having then got a compact and definite problem of equilibrium about a centre which does indeed move slowly, but the movements of which we have for the time neglected, we next take account of those movements; and thus gradually get a broader view of oscillations about a centre which is itself moving and perhaps oscillating in a longer period of time about another centre: somewhat as the moon moves round the earth, which itself in a longer period moves round the sun.

But the sun itself is not fixed. It is moving and perhaps with an oscillatory movement about some very distant centre. And so while market prices oscillate about a position of market equilibrium, which perhaps oscillates about a position of short-period normal equilibrium, that position in its turn may not remain stationary, but may move onwards in one direction, or may oscillate more slowly round a position of long-period normal equilibrium; and that again in its turn may itself be liable to slow changes, possibly having an oscillatory movement, the period of which ranges over many generations or even centuries.

The general reader may pass lightly over the abstract reasonings contained in the next four chapters.

There are many economic doctrines, the chief practical applications of which are of no great difficulty, in spite of the fact that the doctrines themselves when fully developed are extremely complex and intricate; for many of the subtleties which are necessary to give thorough logical completeness to them in their most general and abstract form, have a very narrow range of practical bearing. An instance of this is to be found in the developments of the theory of demand and supply to which we are about to proceed. Those therefore whose interest in economics is chiefly on the practical side, and who desire as far as possible to avoid theoretical subtleties, are recommended to pass lightly over the next four Chapters: a short summary of their chief results is given in the closing Chapter of the Book.

[1] The first of these two plans is followed in Ch. v., the second is introduced in Ch. VII. of the present Book.

CHAPTER V.

THE THEORY OF STABLE EQUILIBRIUM OF NORMAL DEMAND AND SUPPLY.

The construction of the supply schedule.

§ 1. LET us suppose a supply schedule made on just the same plan as our demand schedule: the supply price of the production of each amount of the commodity in a year (or any other unit of time) being written against that amount[1]. As the (annual) amount produced increases, the

[1] Measuring, as in the case of the demand curve, amounts of the commodity along Ox and prices parallel to Oy, we get for each point M along Ox a line MP drawn at right angles to it measuring the supply price for the amount OM, the extremity of which, P, may be called a *supply point*: this price MP being made up of the supply prices of the several factors of production for the amount OM. The locus of P may be called the *supply curve*.

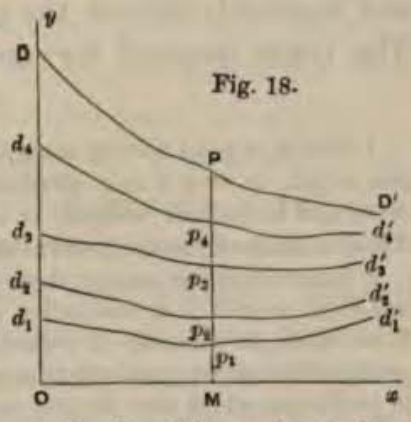


Fig. 18.

Suppose for instance that we classify the expenses of production of an amount OM of cloth under the heads of (i) Mp_1, the supply price of the wool and other circulating capital which would be consumed in making it, (ii) p_1p_2 the corresponding wear and tear and depreciation on buildings, machinery and other fixed capital; (iii) p_2p_3 the interest and insurance on all the capital, (iv) p_3p_4 the wages of those who work in the factory, and (v) p_4P the earnings of management &c. of those who undertake the risks and direct the work. Thus as M moves from O towards the right p_1, p_2, p_3, p_4 will each trace out a curve, and the ultimate supply curve traced out by P will be thus shown as obtained by superimposing the supply curves for the several factors of production of the cloth.

It must be remembered that these supply prices are the prices not of units of the several factors but of those amounts of the several factors which are required for producing a yard of the cloth. Thus for instance p_3p_4 is the supply price not of any fixed amount of labour but of that amount of labour which is employed in making a yard where there is an aggregate production of OM yards. (See Ch. III. § 3.)

supply price may either increase or diminish, or it may even alternately increase and diminish[1]. For if nature is offering a sturdy resistance to man's efforts to wring from her a larger supply of raw material, while at that particular stage there is no great room for introducing important new economies into the manufacture, the supply price will rise; but at a later stage in the growth of the volume of production, when it has perhaps become profitable to substitute largely machine work for hand work and steam power for muscular force, the supply price may diminish in consequence of an increase in the volume of production[2].

Normal Demand Schedule.

The remarks that were made in the course of the preceding chapter on the terms Normal and Market contain all that it is necessary to add here to the account of the demand schedule which was given in the third Book. Attention was there called chiefly to the direct demand of the ultimate consumer: but in the long run the demand of dealers for a finished commodity is completely governed by and implicitly follows the demand of its ultimate consumers. The trade demand for raw materials and other factors of

[1] That is, a point moving along the supply curve towards the right may either rise or fall, or even it may alternately rise and fall: in other words, the supply curve may be inclined positively or negatively, or even at some parts of its course it may be inclined positively and at others negatively. (See first foot-note on p. 160.)

[2] Some difficulties connected with the aggregate outlay required for producing any given amount of a commodity, will be discussed in the following Book. But if we agree provisionally to regard it as estimated by multiplying the amount produced into its marginal supply price, we may then fairly assume that no economies in production which arise directly out of an increase in the amount produced, that is, no economies which do not require the supply curve to be re-drawn, could have the effect of making the total outlay for a large amount less than for a smaller amount. Thus we get the law that though the supply price may diminish with an increase in the amount produced, its diminution cannot be greater than in proportion to the increase in the amount produced. If a curve be drawn such that the product of the distances of every point of it from Ox and Oy is a constant quantity, such a curve may be called a *constant outlay* curve. Let a series of such curves be drawn (that is, a series of rectangular hyperbolas with Ox and Oy as asymptotes). The one law then which a supply curve is bound to obey is that a point moving along it towards the right can never pass from a larger constant outlay curve to a smaller one: and of course, therefore, no supply curve can cut the same constant outlay curve more than once. The geometrical reasonings of this chapter however assume nothing more than the obvious fact that there cannot be two supply prices per unit for the same amount; that is, that the supply curve cannot cut the same vertical line twice.

production presents some difficulties of its own, which must be reserved for discussion later on under the head of Joint Demand.

§ 2. In choosing our typical case of the equilibrium of normal demand and supply, we will consider a period sufficiently long to enable the economic forces at work to develop their chief effects; and we will provisionally leave out of account the facts that none of them act instantaneously and some of them act very slowly. Provisional assumptions of this kind are dangerous if made tacitly or unconsciously, but when properly used they are of great service in helping us to break up, and conquer one by one the difficulties of a complex problem.

Difficulties arising from the lagging of effects behind their causes occur with regard to both demand and supply.

Let us then again distinctly call to mind that interval between an economic change and the full development of its effects, to which we have already referred as obscuring the influence that a fall in the price of a commodity has on the volume of its consumption[1]. And on the side of supply the same lagging of an effect behind its cause makes it very difficult to say what part of the economies which followed any increase in the volume of production are to be attributed to it, and what part are more properly to be ascribed to the mere lapse of time. We know that an increased production cannot instantly create that improved organization of industry which is sure to result from it after a while. Time is required to enable more economical methods to be gradually worked out; and some economies would certainly have been attained through the growth of knowledge, even if there had been no increase in the volume of production. In many practical problems the difficulties arising from this source are very serious, both on the side of demand and on that of supply. Each case must be treated on its own merits; no universal rule is possible.

They are set aside by the convention on which we now proceed.

But let us now agree, as a working arrangement, that the increase of consumption which will result from a fall of price, when people have become familiarized with the change, is to be supposed provisionally to follow immediately on it; allowance being made separately and at a later stage for the

[1] Book III. Ch. II. § 8 and Ch. III. § 6.

gradual growth of this familiarity. In like manner all those economies which will be effected in consequence of an increase in the volume of production, are to be attributed to it as their cause, and to be supposed provisionally to follow immediately on it; allowance for any interval that may have elapsed between the cause and the effect being deferred till the details of the special case are under study, and account is being taken of other disturbing influences. But any economy in production that is the result of an independent invention, is to be placed from the first on a different footing, and regarded as an improvement in the arts of production.

Thus any broad change in fashion, any substantive new invention, any catastrophe such as a great war or pestilence, or the development or dwindling away of a source of supply of the commodity in question, or of a raw material used in it, or of another commodity which is a rival and possible substitute for it:—such changes as these may cause the prices set against any given annual (or daily) consumption and production of the commodity to cease to be its normal demand and supply prices for that volume of consumption and production; or, in other words, they may render it necessary to make out a new demand schedule or a new supply schedule, or both of them. But so long as there is no substantive change in the conditions of demand or supply; so long as the only important changes in the price at which purchasers can be found for the commodity, and the price at which producers can afford to supply it, are those changes which are due to an increase or diminution in the volume of the amount of the commodity produced and sold; so long we may regard the demand schedule and the supply schedule as representing the broad outlines of normal demand and normal supply.

Two or more positions of stable equilibrium can theoretically result

§ 3. Let us now revert to that account of the oscillations of demand and supply about a position of stable equilibrium, which was given at the end of the third Chapter[1]. We tacitly implied, as is commonly done, that there could be only one position of stable equilibrium in a market: but in fact

[1] To represent the equilibrium of demand and supply geometrically we may

there can be more. It sometimes, though rarely, happens that there are two positions of real equilibrium of demand and supply, either of which is equally consistent with the general circumstances of the market, and either of which if once reached would be stable, until some great disturbance occurred.

from the same set of conditions; and such cases sometimes though rarely occur in practice.

Take for instance the case of a commodity which has been produced on a small scale and chiefly by hand labour; its high price having prevented its being bought except by the small class of rich persons whose tastes are very liable to change. The method of producing it makes its wholesale price high; and the smallness of the dealings in it makes its retail price much higher than its wholesale price. For if it passes through a middleman's hands on its way to the retailer's he must have high profits on it to compensate him for the risk of its going out of fashion and the smallness of the

draw the demand and supply curves together as in Fig. 19. If then *OR* represents the rate at which production is being actually carried on, and *Rd* the demand price is greater than *Rs* the supply price, the production is exceptionally profitable, and will be increased. *R*, the *amount-index*, as we may call it, will move to the right. On the other hand, if *Rd* is less than *Rs*, *R* will move to the left. If *Rd* is equal to *Rs*, that is, if *R* is vertically under a point of intersection of the curves, demand and supply are in equilibrium.

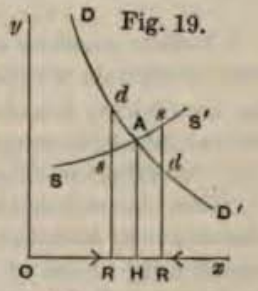


Fig. 19.

This may be taken as the typical diagram for stable equilibrium for a commodity that obeys the Law of Diminishing Return. But if we had made *SS'* a horizontal straight line, we should have represented the case of "Constant Return," in which the supply price is the same for all amounts of the commodity. And if we had made *SS'* inclined negatively, but less steeply than *DD'* (the necessity for this condition will appear more fully in next note), we should have got a case of stable equilibrium for a commodity which obeys the Law of Increasing Return. In either case the above reasoning remains unchanged without the alteration of a word or a letter.

Though in this chapter we take our typical case of stable equilibrium with reference to long-period normal prices, the above diagram is equally applicable to short-period normal prices; but, as was argued in the last chapter, the supply price will in that case increase, under all ordinary conditions, with an increase in the amount produced: that is the supply curve will generally be inclined positively.

The diagram may also be adapted to represent the oscillations of a market price similar to those described above in Chapter II. But the causes which determine supply price for market bargainings are fundamentally different from those that determine normal supply price, whether for long periods or short; and the chief purposes for which the diagram is wanted in the theory of normal value have nothing corresponding to them in the theory of market value.

business done in it; while the retailer himself will certainly add a great deal to the price that he pays for it not only for these reasons, but because the class of customers for whom he lays himself out require him to keep an expensive establishment, and do not much object to being charged high prices. After a time it occurs to someone that it is a thing which the masses would like to have if it were brought within their range; and that if it were produced by machinery on a large scale its wholesale price could be much reduced, that its retail price would fall even more than in proportion, and that consumers would be tempted by the resulting cheapness to purchase largely. Other producers follow suit, and after a time instead of a few hundreds being sold weekly at so many shillings, tens of thousands are sold for an equal number of pence. It is then possible, at all events theoretically, that the price and the amount produced may jump from one position of stable equilibrium to another[1].

[1] Besides positions of stable equilibrium, there are theoretically at least positions of unstable equilibrium: but their only significance lies in the fact that they are the dividing boundaries between two positions of stable equilibria: they are the watersheds, so to speak, dividing two river basins, and the price tends to flow away from them in either direction.

When demand and supply are in unstable equilibrium, then, if the scale of production be disturbed ever so little from its equilibrium position, it will move rapidly away to one of its positions of stable equilibrium; as an egg if balanced on one of its ends would at the smallest shake fall down, and lie lengthways. Just as it is theoretically possible, but practically impossible that an egg should stand balanced on its end, so it is theoretically possible but practically impossible that the scale of production should stay balanced in unstable equilibrium.

Thus in Fig. 20, the curves intersect several times and the arrow-heads on Ox show the directions in which, according to its situation, R tends to move along Ox. This shews that if R is at H or at L and is displaced slightly in either direction, it will, as soon as the disturbing cause is over, return to the equilibrium position from which it was displaced: but that if it is at K and is displaced towards the right, it will continue even after the cessation of the disturbing cause, to move to the right till it reaches L, and if displaced towards the left it will continue to move to the left till it reaches H. That is to say, H and L are points of stable equilibrium and K is a point of unstable equilibrium. We are thus brought to the result that:—

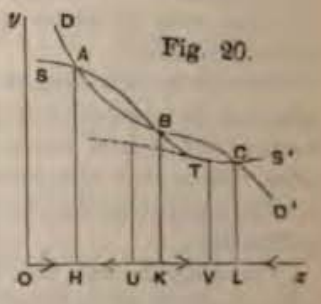


Fig. 20.

The equilibrium of demand and supply corresponding to a point of intersection of the demand and supply curves is stable or unstable according as the demand curve lies above or below the supply curve just to the left of that point; or,

The pure theory in its earlier stages diverges but little from actual facts; but if pushed far its practical value rapidly diminishes.

§ 4. It has already been indicated that the theory of stable equilibrium of normal demand and supply in its most abstract form assumes a certain rigidity in the conditions of demand and supply, which does not really exist. This theory however, especially when aided by diagrams, helps to give definiteness to our ideas; and in its elementary stages it does not diverge from the actual facts of life so far as to prevent its giving a fairly trustworthy picture of the chief methods of action of the strongest and most persistent group of economic forces. It is only when pushed to its more remote and intricate logical consequences, especially those connected with multiple positions of equilibrium, that it slips away from the conditions of real life, and soon ceases to be of much service in dealing with practical problems. The chief cause of this divergence is the fact that, if the normal production of a commodity increases and afterwards again

which is the same thing, according as it lies below or above the supply curve just to the right of that point. (If the curves touch one another at any point, the equilibrium corresponding to it will be stable for displacements in one direction, and unstable for displacements in the other. No practical interest attaches to the investigation of this barely possible case.)

We have seen that the demand curve is inclined throughout negatively. From this it follows that if just to the right of any point of intersection the supply curve lies above the demand curve, then if we move along the supply curve to the right we must necessarily keep above the demand curve till the next point of intersection is reached: that is to say, the point of equilibrium next on the right-hand side of a point of stable equilibrium, must be a point of unstable equilibrium; and, it may be proved in like manner, that so must the adjacent point of intersection on the left-hand side. In other words, in cases in which the curves cut each other more than once points of stable and unstable equilibrium alternate.

Also the last point of intersection reached as we move to the right must be a point of stable equilibrium. For if the amount produced were increased indefinitely the price at which it could be sold would necessarily fall almost to zero; but the price required to cover the expense of producing it would not so fall. Therefore, if the supply curve be produced sufficiently far towards the right, it must at last lie above the demand curve.

The first point of intersection arrived at as we proceed from left to right may be a point either of stable or of unstable equilibrium. If it be a point of unstable equilibrium, this fact will indicate that the production of the commodity in question on a small scale will not remunerate the producers; so that its production cannot be commenced at all unless some passing accident has caused temporarily an urgent demand for the commodity, or has temporarily lowered the expenses of producing it; or unless some enterprising firm is prepared to sink a large capital in overcoming the initial difficulties of the production, and bringing out the commodity at a price which will ensure large sales.

[This theory of unstable equilibrium was published independently by M Walras and the present writer. See Preface.]

diminishes to its old amount, the demand price and the supply price are not likely to return, as the pure theory assumes that they will, to their old positions for that amount.

The assumption that the demand schedule is rigid.

We have already noticed that the increase in consumption arising from a fall in price is of gradual, and sometimes even of slow growth: and now we have to lay stress on the fact that habits which have once grown up around the use of a commodity while its price is low, are not quickly abandoned when its price rises again. If therefore after the supply has gradually increased, some of the sources from which it is derived should be closed, or any other cause should occur to make the commodity scarce, many consumers will be reluctant to depart from their wonted ways. For instance the prices of cotton during the American war showed that the consumers were bidding for the reduced supply a price higher than that for which an equal amount could have been sold, if its previous low price had not brought it into common use to meet a great variety of wants, many of which indeed it had itself created[1]. Thus then the schedule of demand prices which holds for the forward movement of the production of a commodity will seldom hold for the return movement, but will in general require to be raised[2].

The assumption that the supply schedule is rigid.

Again the supply schedule may have fairly represented the actual fall in the supply price of the thing which takes place when the supply is being increased; but if the demand should fall off, or if for any other reason, the supply should have to be diminished, the supply price would not move back by the course by which it had come, but would take a lower course. The schedule of supply prices which had held for the forward movement would not hold for the back-

[1] Of course the movement of the prices of cotton during the war was the result of many causes; and before deducing statistically the effect of the cause which we are now considering, we should have to isolate it, by allowing for the stock of cotton goods in the hands of consumers, &c. The extreme competition for employment on the part of manufacturers for their machinery, and on the part of artisans for their skill brought the supply price of calico very close to that of the raw material, but of course this did not affect the demand price.

[2] That is, for any backward movement of the amount offered for sale, the left end of the demand curve would probably need to be raised in order to make it represent the new conditions of demand.

ward movement, but would have to be replaced by a lower schedule. This is true whether the production of the commodity obeys the law of Diminishing or Increasing Return; but it is of special importance in the latter case, because the fact that the production does obey this law, proves that its increase leads to great improvements in organization.

For, when any casual disturbance has caused a great increase in the production of any commodity, and thereby has led to the introduction of extensive economies, these economies are not readily lost. Developments of mechanical appliances, of division of labour and of the means of transport, and improved organization of all kinds, when they have been once obtained are not readily abandoned. Capital and labour, when they have once been devoted to any particular industry, may indeed become depreciated in value, if there is a falling off in the demand for the wares which they produce: but they cannot quickly be converted to other occupations; and their competition will for a time prevent a diminished demand from causing an increased price of the wares[1].

Partly for this reason there are not very many cases in which two positions of stable equilibrium would stand out as possible alternatives at one and the same moment, even if all the facts of the market could be ascertained with perfect accuracy. But when the conditions of a branch of manufacture are such that the supply price would fall very rapidly, if there should be any great increase in the scale of production, then a passing disturbance by which the demand for the commodity was increased might cause a very great fall in the stable equilibrium price, a very much larger amount than before being henceforward produced for sale at a very much lower price. This is always possible when, if we could trace the demand and supply schedules far ahead, we should find

Cases are not very rare in which a small alteration of the conditions of demand or supply will cause a very great change of the equilibrium price.

[1] For instance, the shape of the supply-curve in Fig. 20, implies that if the ware in question were produced on the scale OV annually, the economies introduced into its production would be so extensive as to enable it to be sold at a price TV. If these economies were once effected the shape of the curve SS' would probably cease to represent accurately the circumstances of supply. The expenses of production, for instance, of an amount OU would no longer be much greater proportionately than those of an amount OV. Thus in order that the curve might again represent the circumstances of supply it would be necessary to draw it lower down, as the dotted curve in the figure.

them keeping close together[1]. For if the supply prices for largely increased amounts are but very little above the corresponding demand prices, a moderate increase in demand, or a comparatively slight new invention or other cheapening of production may bring supply and demand prices together and make a new equilibrium. Such a change resembles in some respects a movement from one alternative position of stable equilibrium to another, but differs from the latter in that it cannot occur except when there is some change in the conditions of normal demand or normal supply[2].

The possession of any rare natural advantages affords to the producers a *Surplus* or *Rent*.

§ 5. When different producers have different advantages for producing a thing, its supply price is equal to its expenses of production to those producers who have no special and exceptional facilities. When the market is in equilibrium, and the thing is being sold at a price which covers these expenses, there remains a surplus beyond their expenses for those who have the assistance of any exceptional natural advantages; which being free gifts of nature have no cost of production, no supply price. This surplus we may call PRODUCER'S SURPLUS or PRODUCER'S RENT. (There is a Surplus in any case, and if the owner of the free gift of nature lends it out to another, he can generally get for its use a Rent equivalent to this Surplus. The term Rent has been much used by economists for this purpose; but the more general term Surplus seems to be the better adapted for it.)

The special facilities may be of many different kinds: they may be mental, moral or physical qualities: they may be the possession of rich or conveniently situated fields or mines or building ground. The plan of regarding the expenses of production of a commodity as reckoned for those parts of it which were produced under conditions of no exceptional advantage, and therefore paid no rent, was devised by Ricardo; but applied by him only to the case of agricultural rent. The plan has great difficulties which will be examined carefully in the following Book. Here we are concerned only to notice the place which is left for Pro-

[1] That is when at a good distance to the right of the equilibrium point, the supply curve is but little above the demand curve.

[2] See below Ch. VII.

ducer's Surplus or Rent in the theory of the stable equilibrium of demand and supply in its broadest form[1].

[1] Let DD' and SS' be the demand and supply curves for wheat. Let OH be the equilibrium amount and HA the equilibrium price. Let P be a point on SS', and let QPM be drawn cutting AF a horizontal line through A in Q and Ox in M. Then the OMth bushel has expenses of production MP: but being sold for price AH, that is, MQ, it affords a Producers' Surplus or Rent equal to PQ. Proceeding as in the case of Consumers' Surplus or Rent (Bk. III. Ch. IV. § 1), we may regard MQ as a thin parallelogram or as a thick straight line. And as M takes consecutive positions along OH, we get a number of thick straight lines cut in two by the line SA, the lower part of each representing the expenses of production of a bushel of corn, and the upper the contribution which that bushel affords towards rent. The lower set of thick lines taken together fill up the whole space $SOHA$; which therefore represents the aggregate of the expenses of production of OH corn. The upper set of thick lines taken together fill up the space FSA, which therefore represents Producer's Surplus or Rent. Subject to the corrections mentioned in Book III. Ch. VI. § 2, DFA represents the surplus satisfaction which consumers get from an amount OH over that, the value of which is represented to them by a sum of money equal to $OH \times HA$; and the diagram shows how the name "Consumer's Rent" was suggested for this Surplus.

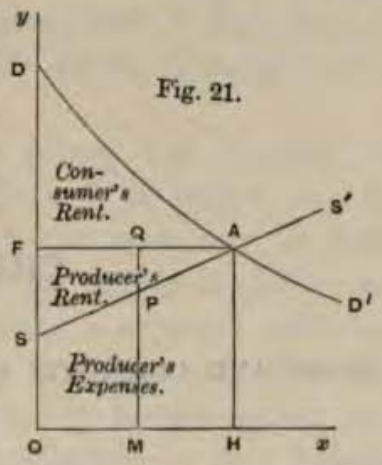


Fig. 21.

It must however be remembered that we have tacitly assumed that MP being the expenses of production of that part of the produce which was raised under the most difficult circumstances (so as to pay no rent) when OM was produced, remains also the expenses of production (other than rent) of the OMth unit even when OH is produced, or in other words, that the increase in production from the amount OM to the amount OH did not alter the expenses of production of the OMth bushel. And this assumption is seldom strictly in accordance with facts. The increased production would almost inevitably have improved the organization of production and lowered the expenses of production of the OMth bushel. And it is therefore almost certain that the rent would really be somewhat more than FSA.

[Subject to certain conditions, the rent may be represented by the area lying between FA and a short-period supply curve drawn on the supposition that the economies due to industrial organization are to be taken to be those which properly belong to the amount OH, and which are regarded as attaching to that amount only, when a long-period curve is being drawn. It seems however doubtful whether it is worth while to push the analogy very far; for, as our studies of rent in the next two books will indicate, it could not be made exact without the introduction of intricate and artificial hypotheses. The short-period curve just referred to would be inclined positively and would be steeper than the SS' of our figure; but not necessarily much steeper unless our SS' were drawn for a very long period. If however the diagram had represented the long-period normal supply price of a manufactured commodity, SS' would have been inclined negatively; and the short-period just referred to, being inclined positively, would stand in no close relation to it.]

CHAPTER VI.

JOINT AND COMPOSITE DEMAND: JOINT AND COMPOSITE SUPPLY.

Derived demand and joint demand.

§ 1. THE demand for producers' goods, or goods of the second and higher orders, as we have termed them, is indirect; it is *derived* from the demand for consumers' goods, or goods of the first order, towards the production of which they contribute; or, in other words, the demands for all the various factors of production of a finished commodity are joined together in the JOINT DEMAND for it. Thus the demand for beer is direct, and is a joint demand for hops, malt, brewers' labour, and the other factors of production of beer: and the demand for any one of them is an indirect demand derived from that for beer. Again there is a direct demand for new houses; and from this there arises a joint demand for the labour of all the various building trades, and for bricks, stone, wood, etc., which are factors of production of building work of all kinds, or as we may say for shortness, of new houses. But the demand for any one of these, as for instance the labour of plasterers, is only an indirect demand.

Illustration taken from a labour dispute in the building trade.

Let us take an illustration from a class of events that are of frequent occurrence in the labour market; the period over which the disturbance extends being short, and the causes of which we have to take account as readjusting demand and supply being only such as are able to operate within that short period.

This case has important practical bearings, which give it a special claim on our attention; but we should notice that, referring as it does to short periods, it is an exception to our general rule of selecting illustrations in this and the neighbouring chapters from cases in which there is time enough for the full long-period action of the forces of supply to be developed.

Let us then suppose that the supply and demand for building being in equilibrium, there is a strike on the part of one group of workers, say the plasterers, or that there is some other disturbance to the supply of plasterers' labour. In order to isolate and make a separate study of the demand for that factor, let us suppose firstly that the general conditions of the demand for new houses remain unchanged (that is, that the demand schedule for new houses remains valid), and secondly that the general conditions of supply of the other factors also remain unchanged (that is that their supply schedules also remain valid). Then assuming for the present that plasterers' labour is indispensable, a temporary check to the supply of plasterers' labour will cause a proportionate check to the amount of building: the demand price for the diminished number of houses will be a little higher than before; and the supply prices for the other factors of production will not be greater than before[1]. Thus the demand price for new houses will now exceed the sum of the supply prices of these other factors by a good margin; and that margin gives the limit to the possible rise of the demand price for plasterers' labour. The different amounts of this margin, corresponding to different checks to the supply of plasterers' labour, are determined by the general rule:—

General law of derived demand.

The demand schedule for any factor of production of a commodity can be derived from that for the commodity by subtracting from the demand price of each separate amount of the commodity the sum of the supply prices for corresponding amounts of the other factors.

[1] This is at any rate true under all ordinary conditions: there will be less extra charges for overtime; and the price of the labour of carpenters, bricklayers and others is likely rather to go down than to go up, and the same is true of bricks and other building materials.

It must always be remembered that this Derived schedule has no validity except on the supposition that we are isolating this one factor for separate study; that its own conditions of supply are disturbed; that there is at the time no independent disturbance affecting any other element in the problem[1]; and that therefore in the case of each of the other

[1] In illustrating this by a diagram it will be well, for the sake of shortness of wording, to divide the expenses of production of a commodity into the supply prices of two things of which it is made; let us then regard the supply price of a knife as the sum of the supply prices of its blade and handle, and neglect the expense of putting the two together. Let ss' be the supply curve for handles and SS' that for knives; so that M being any point on Ox, and MqQ being drawn vertically to cut ss' in q and SS' in Q, Mq is the supply price for OM handles, qQ is the supply price for OM blades and MQ the supply price for OM knives. Let DD' the demand curve for knives cut SS' in A, and AaB be drawn vertically as in the figure. Then in equilibrium OB knives are sold at a price BA of which Ba goes for the handle and aA for the blade.

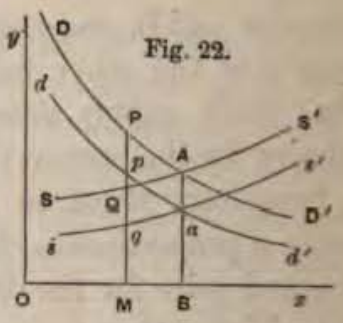


Fig. 22.

(In this illustration we may suppose that sufficient time is allowed to enable the forces which govern supply price to work themselves out fully; and we are at liberty therefore to make our supply curves inclined negatively. This change will not affect the argument; but on the whole it is best to take our typical instance with the supply curve inclined positively.)

Now let us suppose that we want to isolate for separate study the demand for knife handles. Accordingly we suppose that the demand for knives and the supply of blades conform to the laws indicated by their respective curves: also that the supply curve for handles still remains in force and represents the circumstances of normal supply of handles, although the supply of handles is temporarily disturbed. Let MQ cut DD' in P, then MP is the demand price for OM knives and Qq is the supply price for OM blades. Take a point p in MP such that Pp is equal to Qq, and therefore Mp is the excess of MP over Qq; then Mp is the demand price for OM handles. Let dd' be the locus of p obtained by giving M successive positions along Ox and finding the corresponding positions of p; then dd' is the derived demand curve for handles. Of course it passes through a. We may now neglect all the rest of the figure except the curves dd', ss'; and regard them as representing the relations of demand for and supply of handles, other things being equal, that is to say, in the absence of any disturbing cause which affects the law of supply of blades and the law of demand for knives. Ba is then the equilibrium price of handles, about which the market price oscillates, in the manner investigated in the preceding chapter, under the influence of demand and supply, of which the schedules are represented by dd' and ss'. It has already been remarked that the ordinary demand and supply curves have no practical value except in the immediate neighbourhood of the point of equilibrium. And the same remark applies with even greater force to the equation of derived demand.

Since $Mp - Mq = MP - MQ$; therefore A being a point of stable equilibrium,

factors of production the selling price may be taken to coincide always with the supply price.

Cautions as to the practical applications of the theory.

§ 2. When however we come to apply this theory to the actual conditions of life, it will be important to remember that if the supply of one factor is disturbed, the supply of others is likely to be disturbed also. In particular, when the factor by which the supply is disturbed is one class of labour, as that of the plasterers, the employers' earnings generally act as a buffer. That is to say, the loss falls in the first instance on them; but by discharging some of their workmen and lowering the wages of others, they ultimately distribute a great part of it among the other factors of production. The way in which this comes about depends chiefly on trade combinations, on the higgling and bargaining of the market and on other passing accidents with which we are not just at present concerned.

Conditions under which a check to supply may raise much the price of a factor of production.

It is important to note the general conditions under which a check to the supply of a thing which is wanted not for direct use, but as a factor of production, may cause a very great rise in its price. The first condition is that the commodity in the production of which it is a necessary factor, should be one for which the demand is stiff and inelastic; so that a check to its supply will cause consumers to offer a much increased price for it rather than go without it; and this of course includes the condition that no good substitutes for the commodity are available at a price but little higher than its equilibrium price. If the check to house building raises the price of houses very much, builders, anxious to secure the exceptional profits, will bid against one another for such plasterers' labour as there is in the market[1].

the equilibrium at a also is stable, whether the supply curves are positively or negatively inclined.

In the illustration that has just been worked out the unit of each of the factors remains unchanged whatever be the amount of the commodity produced; for one blade and one handle are always required for each knife; but when a change in the amount of the commodity produced changes the amount of each factor that is required for the production of a unit of the commodity, the demand and supply curves for the factor got by the above process are not expressed in terms of fixed units of the factor. They must be translated back into terms of fixed units before they are available for general use. (See Mathematical Note XIII.)

[1] We have to inquire under what conditions the ratio pM to aB will be the

The second condition is that only a small part of the expenses of production of the commodity should consist of the price of this factor. Since the plasterers' wages are but a small part of the total expense of building a house, a rise of even 50 per cent. in them would add but a very small percentage to the expenses of production of a house and would check demand but little[1].

The third condition is that even a small check to the amount demanded should cause a considerable fall in the supply prices of other factors of production; for that will increase the margin available for paying a high price for this one[2]. If, for instance, bricklayers and other classes of workmen, or the employers themselves cannot easily find other things to do, and cannot afford to remain idle, they may be willing to work for much lower earnings than before, and this will increase the margin available for paying higher wages to plasterers. These three conditions are independent, and their effect is cumulative.

The moderating influence of the Law of Substitution,

It must be borne in mind that, as above implied, we assume that the factor in question is an essential factor; that it is almost indispensable, no good substitute being available at a moderate price. The rise in plasterers' wages would be checked if it were possible either to avoid the use of plaster, or to get the work done tolerably well and at a moderate price by people outside the plasterers' trade. The Law of Substitution here as elsewhere exercises a subduing influence on forces which might otherwise lead to startling results. The tyranny which one factor of production of a commodity might in some cases exercise over the other factors through the Law of Indirect Demand is tempered by the Law of Substitution[3].

greatest, pM being the demand price for the factor in question corresponding to a supply reduced from OB to OM, that is reduced by the given amount BM. The first condition is that PM should be large; and since the elasticity of demand is measured by the ratio which BM bears to the excess of PM over AB, the greater PM is, the smaller, other things being equal, is the elasticity of demand.

[1] The second condition is that when PM exceeds AB in a given ratio, pM shall be caused to exceed Ba in a large ratio: and other things being equal, that requires Ba to be but a small part of BA.

[2] That is, if Qq had been smaller than it is, Pp would have been smaller and Mp would have been larger. See also Mathematical Note XIV.

[3] Dr Böhm-Bawerk in his excellent *Grundzüge der Theorie des wirtschaftlichen*

Again, an increased difficulty in obtaining one of the factors of a finished commodity can often be met by modifying the character of the finished product. Some plasterers' labour may be indispensable; but people are often in doubt how much plaster work it is worth while to have in their houses, and if there is a rise in its price they will have less of it. The satisfaction of which they would be deprived if they had a little less of it, is its marginal utility; the price which they are just willing to pay in order to have it, is the true demand price for plasterers' work up to the amount which is being used. So again there is a joint demand for malt and hops in ale: but their proportions can be varied, the difference in the price which can be got for two kinds of ale similar in other respects, but of which one has more hops than the other, gives the means of determining the demand price for hops[1].

and of the power of modifying the proportions which the several factors of production of a commodity bear to one another.

§ 3. So far we have spoken as though each factor of production were used in making only one class of goods; but nearly every raw material and nearly every kind of labour is applied in many different branches of industry, and contributes to the production of a great variety of commodities. Each of these commodities has its own direct demand from which the derived demand for any of the factors made in using it can be found. The total demand for the factor may be called a COMPOSITE demand: it is the sum of the derived demands for it, in each of its several uses; and these may be added together, in just the same way as the partial demands of several classes of society for a finished commodity are added together, and thus make up the total COMPOSITE demand for it[2].

Composite demand.

When there is a composite demand for a thing, whether a finished commodity or a factor of production, its distribution between its several uses is of course such that it can

The distribution of an economic good

Güterwerts (*Jahrbuch für Nationalökonomie und Statistik*, vol. XIII. p. 59) shows that if all but one of the factors of production of a commodity have available substitutes in unlimited supply, by which their own price is rigidly fixed, the derived demand price for the remaining factor will be the excess of the demand price for the finished product over the sum of the supply prices thus fixed for the remaining factors. This is an interesting special case of the law given in the text.

[1] See Mathematical Note XV.

[2] Thus, let a factor of production have three uses. Let $d_1 d_1'$ be the demand

between several uses.

be sold for each use at the same price; that is, its marginal utility for each use has the same economic measure. If the last purchasers of it for all the uses were of the same wealth, it follows that its marginal utility was the same in all uses[1].

Joint Supply.

§ 4. We may now pass to consider the case of things which have a JOINT SUPPLY. It corresponds to that of things which have a joint demand, and it may be discussed almost in the same words, by merely substituting "demand" for "supply," and *vice versâ*. When two or more things are produced by one and the same process; so that the expenses of producing them all together are not greater than the expenses of producing one of them alone would be; then these things are called *joint products*. Thus wheat and straw are joint products; beef and hides are joint products.

Derived supply schedule.

If it is desired to isolate the relations of demand and supply for a joint product, the derived supply schedule for it is found in just the same way as the derived demand schedule for a factor of production was found in the parallel case of demand. Other things must be assumed to be equal; that is, the supply schedule for the whole process of production must be assumed to remain in force, and so must the demand schedule for each of the joint products except that to be isolated. The derived supply schedule for this product is then found by the rule that its supply price is equal to the excess of the supply price for the whole process

curve for it in its first use. From N any point on Oy draw Np_1 horizontally to cut d_1d_1' in p_1; then Np_1 is the amount that is demanded for the first use at price ON. Produce Np_1 to p_2, and further on to P making p_1p_2 and p_2P of such lengths as to represent the amounts of the factor demanded at price ON for the second and third uses respectively. As N moves along Oy let p_2 trace out the curve d_2d_2' and let P trace out the curve DD'. Thus d_2d_2' would be the demand curve for the factor if it had only its first and second uses. DD' is its demand curve for all three uses. It is immaterial in what order we take the several uses. In the case represented, the demand for the second use begins at a lower price and that for the third use begins at a higher price than does the demand for the first use. (See Mathematical Note XVI.)

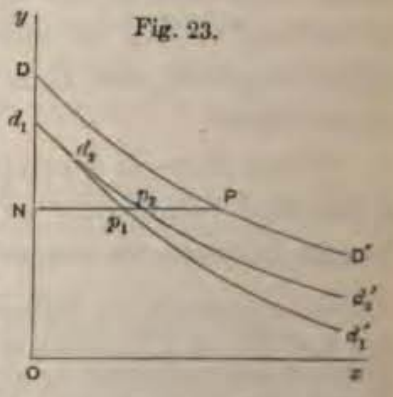


Fig. 23.

[1] Compare Jevons' *Theory*, 2nd Edn. pp. 63—6 and 198—200.

of production over the sum of the demand prices of all the other joint products; the prices being taken throughout with reference to corresponding amounts[1]. In manufacture and agriculture, in the carrying and distributing trades, it is often a matter of the greatest difficulty to decide what are the real expenses of any one of the many operations that are being done at the same time. The difficulty is greatest with regard to those fixed charges which would run on if little or nothing were being done in the establishment. We shall be much occupied hereafter with the troubles that arise from this source.

But, where the relative proportions of joint products can be modified.

There are however very few cases of joint products the cost of production of both of which together is exactly the same as that of one of them alone. So long as any product of a business has a market value, it is almost sure to have devoted to it some special care and expense, which would be diminished, or dispensed with if the demand for that product were to fall very much. Thus, for instance, if straw were valueless, farmers would exert themselves more than they do to make the ear bear as large a proportion as possible to the stalk. Again, the importation of foreign wool has caused English sheep to be selected almost exclusively for their tendency to develop early heavy weights of good meat. It is only when one of two things produced by the same process is valueless, unsaleable, and yet does not involve

[1] We may again illustrate by a simple example. Let SS' be the supply curve for bullocks; dd' the demand curve for their carcases, that is, for the meat derived from them. M being any point on Ox draw Mp vertically to cut dd' in p, and produce it to P so that pP represents the demand price for OM hides. Then MP is the demand price for OM bullocks, and DD' the locus of P is the demand curve for bullocks: it may be called the total demand curve. Let DD' cut SS' in A; and draw AaB as in the figure. Then in equilibrium OB bullocks are produced and sold at the price BA of which Ba goes for the carcase and aA for the hide.

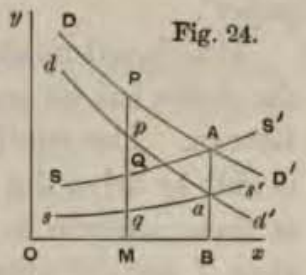


Fig. 24.

Let MP cut SS' in Q. From QM cut off Qq equal to Pp; then q is a point on the derived supply curve for carcases. For if we assume that the selling price of OM hides is always equal to the corresponding demand price Pp, it follows that since it costs QM to produce each of OM bullocks there remains a price $QM - Pp$, that is qM, to be borne by each of the OM hides. Then ss' the locus of q, and dd' are the supply and demand curves for hides. (See Mathematical Note XVII.)

any expense for its removal, that there is no inducement to attempt to modify their relative proportions.

we can often determine the supply price of any of them by an easy direct method.

And it is only in these exceptional cases that there is, as a rule, any great difficulty in ascertaining the separate supply price of each of the joint products. For when it is possible to modify the proportions of these products, it can always be ascertained what part of the whole expense of the process of production would be saved, by so modifying these proportions as slightly to diminish the amount of one of the joint products, without affecting the amounts of the others. That part of the expense is the expense of production of the marginal element of that product; it is the supply price of which we are in search[1].

Composite Supply.

§ 5. We may pass to the problem of COMPOSITE SUPPLY which is analogous to that of composite demand. It is closely connected with the Law of Substitution which has been noticed already.

Rival commodities

We may consider that two things are *rivals* when they are capable of satisfying the same demand. If the causes which determine their production are nearly the same, they may for many purposes be treated as one commodity[2]. For instance, beef and mutton may be treated as varieties of one commodity for many purposes; but they must be treated as separate for others, as for instance for those in which the question of the supply of wool enters. Rival things are however often not finished commodities, but factors of production. For instance, there are many rival fibres which are used in making ordinary printing paper[3].

cannot generally remain in the field together, if any of them obeys the Law of Increasing Return.

Continued rivalry is as a rule possible only when none of the rivals has its supply governed by the Law of Increasing Return. The equilibrium is stable only when none of them is able to drive the others out; and this is the case when all of them conform to the Law of Diminishing Return; because then if one did obtain a temporary advantage and its use increased, its supply price would rise, and then the others

[1] See Mathematical Note XVIII.

[2] Comp. Jevons, *l. c.* pp. 145, 6.

[3] The want which all the rivals tend to satisfy is met by a composite supply, the total supply at any price being the sum of the partial supplies at that price.

Thus, for instance, N being any point on Oy draw Nq_1, q_2, Q parallel to

would begin to undersell it. But if one of them conformed to the Law of Increasing Return, the rivalry would soon cease; for whenever it happened to gain a temporary advantage over its rivals its increased use would lower its supply price and therefore increase its sale—its supply price would then be further lowered, and so on: thus its advantage over its rivals would be continually increased until it had driven them out of the field. It is true that there are apparent exceptions to this rule; and things which conform to the Law of Increasing Return do sometimes seem to remain for a long time in the field as rivals: such is the case perhaps with different kinds of sewing machines and of electric lights. But in these cases the things do not really satisfy the same wants, they appeal to slightly different needs or tastes; there is still some difference of opinion as to their relative merits; or else perhaps some of them are patented or in some other way have become the monopoly of particular firms. In such cases custom and the force of advertising may keep many rivals in the field for a long time; particularly if the producers of those things which are really the best in proportion to their expenses of production are not able effectively to advertise and push their wares by travellers and other agencies.

In real life the connections between the causes determining the values of different things often reach

§ 6. In real life there are very few things the value of which can be determined without taking some account of all the four chief problems which have been discussed in this chapter. We often find connections between the prices of commodities which at first seem far apart.

Thus when charcoal was generally used in making iron, the price of leather depended in some measure on that of

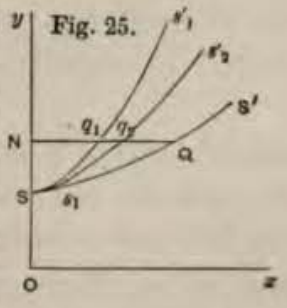


Fig. 25.

Ox such that Nq_1, q_1q_2 and q_2Q are respectively the amounts of the first, second and third of those rivals which can be supplied at the price *ON*. Then *NQ* is the total composite supply at that price, and the locus of *Q* is the total supply curve of the means of satisfying the want in question. Of course the units of the several things which are rivals must be so taken that each of them satisfies the same amount of the want. In the case represented in the figure small quantities of the third rival can be put on the market at a price too low to call forth any supply of the other two. (See Mathematical Note XIX.)

far and are very complex. Illustrations.

iron; and the tanners petitioned for the exclusion of foreign iron in order that the demand on the part of English iron smelters for oak charcoal might cause the production of English oak to be kept up, and thus prevent oak bark from becoming dear[1]. Again, the development of railways and other means of communication for the benefit of one trade, as for instance wheat growing in some parts of America and silver mining in others, greatly lowers some of the chief expenses of production of nearly every other product of those districts. Again, the prices of soda, and bleaching materials and other products of industries, the chief raw material of which is salt, move up and down relatively to one another with almost every improvement in the various processes which are used in those industries; and every change in those prices affects the prices of many other goods; for the various products of the salt industries are more or less important factors in many branches of manufacture[2].

[1] Toynbee (*Industrial Revolution*, p. 80). This instance may serve to remind us of the way in which an excessive demand for a thing may cause its sources of supply to be destroyed, and thus render scarce any joint products that it may have: for the demand for wood on the part of the ironmakers led to a relentless destruction of many forests in England. Again, an excessive demand for lamb was assigned as a cause of the prevailing scarcity of sheep a few years ago, while some argued on the contrary that the better the price to be got for spring lamb sold to the rich, the more profitable would be the production of sheep, and the cheaper would mutton be for the people. The fact is that an increase of demand may have opposite effects according as it does or does not act so suddenly as to prevent producers from adapting their action to it.

[2] See Mathematical Note xx.

CHAPTER VII.

THEORY OF CHANGES IN NORMAL DEMAND AND SUPPLY, WITH SOME OF ITS BEARINGS ON THE DOCTRINE OF MAXIMUM SATISFACTION.

We have to consider changes in the equilibrium level about which the price oscillates.

§ 1. We have watched the oscillations of the price of a commodity about its normal position of equilibrium: we have next to examine the movements of that position of equilibrium itself. The price fluctuates up and down like a cork on the surface of the water in a reservoir. So long as the normal conditions of demand and supply remain unchanged, the equilibrium position about which the price oscillates will be stationary, just as the mean level about which the cork oscillates with every passing wave will remain stationary so long as there is no change in the normal condition of the great body of water. But the mean level of the water changes from time to time, rising after a heavy rain and falling during a long drought; and in consequence the centre about which the cork oscillates moves gradually up or down. So the normal position of equilibrium about which the price oscillates may move gradually up and down, in consequence of a change in the general conditions of demand or in the general conditions of supply.

What is meant by an increase of normal demand,

We have already seen that an increase of normal demand involves generally an increase in the price list all along the demand schedule, that is, each several amount can find purchasers at a higher price than before: or which is the same thing, at each several price a greater quantity than before

can find purchasers; and this we have called a rising of the demand schedule. This increase of normal demand, or rising of the demand schedule, may be caused by the commodity's coming more into fashion, by the opening out of a new use for it or of new markets for it, by the permanent falling off in the supply of some commodity for which it can be used as a substitute, by a permanent increase in the wealth and general purchasing power of the community, and so on. Changes in the opposite direction will cause a falling off in demand and a sinking of the demand schedule.

or of normal supply.

An increase of normal supply means an increase of the amounts that can be supplied at each several price, and a diminution of the price at which each separate amount can be supplied; thus an increase of normal supply involves a lowering of the supply schedule[1]. This change may be caused by the opening up of a new source of supply, whether by improved means of transport or in any other way, by an advance in the arts of production, such as the invention of a new process or of new machinery, or again by the granting of a bounty on production. Conversely, a diminution of normal supply, or a raising of the supply schedule, may be caused by the closing up of a new source of supply or by the imposition of a tax[2].

[1] A rise or fall of the demand or supply schedule involves of course a rise or fall of the demand or supply curve.

[If the change is gradual, the supply curve will assume in succession a series of positions, each of which is a little below the preceding one; and in this way we might have represented the effects of that gradual improvement of industrial organization which arises from an increase in the scale of production, and which we have represented by assigning to it an influence upon the supply price for long-period curves. In an ingenious paper privately printed by Mr H. Cunyng-hame, a suggestion is made, which seems to come in effect to proposing that a long-period supply curve should be regarded as in some manner representing a series of short-period curves; each of these curves would assume throughout its whole length that development of industrial organization which properly belongs to the scale of production represented by the distance from *Oy* of the point in which that curve cuts the long-period supply curve (compare the end of the note on page 429) and similarly with regard to demand].

[2] The theory of the incidence of taxation has been generally treated as a branch of the application of economic science to the practical Art of Government. But really it is an integral part of the general theory of value; and there is a gain of scientific completeness in regarding in the first instance a tax on a thing simply as one of many causes which may raise its normal supply price. It will be best not to trace in detail the incidence of particular taxes until we come to discuss

The typical case of rapid oscillation is that of the current or market price about its normal (or rather its subnormal) position of equilibrium. But, as has already been explained, the subnormal (or short-period normal) level moves in a similar manner, though more slowly and less conspicuously about a long-period normal level. The longer the periods for which our normal demand and supply schedules are taken the fewer will be the disturbing causes which are so great, and which last so long, as to amount to a distinct change in the general conditions of demand and supply, and to necessitate the making out of a new demand schedule, or a new supply schedule, or both. And therefore in the great majority of cases to which the reasonings of this chapter are applicable, the supply schedule will show a supply price increasing with the amount produced. But the exceptions to this rule, though not numerous, are very important.

Effects of an increase of normal demand.

§ 2. We have, then, to regard the effects of an increase of normal demand from three points of view, according as the commodity in question obeys the Law of Constant or of Diminishing or of Increasing Return: that is, its supply price is practically constant for all amounts, or increases or diminishes with an increase in the amount produced.

In the first case an increase of demand simply increases the amount produced without altering its price; for the normal price of a commodity which obeys the law of Constant Return is determined absolutely by its expenses of production: demand has no influence in the matter beyond this, that the thing will not be produced at all unless there is some demand for it at this fixed price.

If the commodity obeys the law of Diminishing Return an increase of demand for it raises its price and causes more of it to be produced; but not so much more as it would if it obeyed the law of Constant Return.

On the other hand if the commodity obeys the law of Increasing Return an increase of demand causes much more of it to be produced,—more than if the commodity obeyed the law of Constant Return,—and at the same time lowers

taxation as a whole: but meanwhile a tax may be taken as a representative instance of the changes which may affect supply price.

its price. If, for instance, a thousand things of a certain kind have been produced and sold weekly at a price of 10*s.*, while the supply price for two thousand weekly would be only 9*s.*, a very small increase in normal demand may cause this to become the normal price, assuming of course that we are considering periods long enough for the full normal action of the causes that determine supply to work itself out[1].

[1] Diagrams are of especial aid in enabling us to comprehend clearly the problems of this chapter.

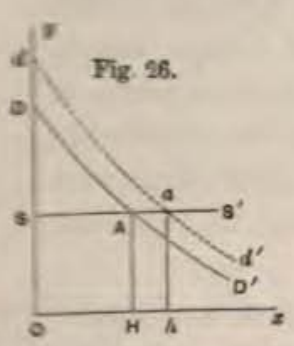


Fig. 26.

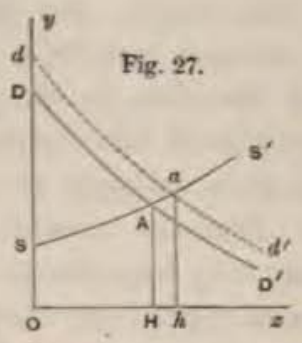


Fig. 27.

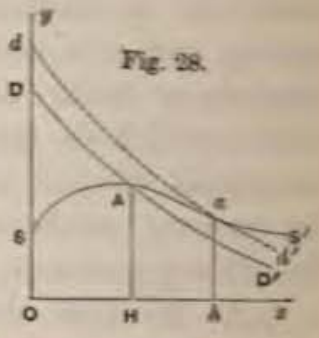


Fig. 28.

The three figures (26), (27), (28) represent the three cases of constant, diminishing and increasing return respectively. The return in the last case is a diminishing one in the earlier stages of the increase of production, but an increasing one in those subsequent to the attainment of the original position of equilibrium, i.e. for amounts of the commodity greater than OH. In each case SS' is the supply curve, DD' the old position of the demand curve, and dd' its position after there has been increase of normal demand. In each case A and a are the old and new positions of equilibrium respectively, AH and ah are the old and new normal or equilibrium prices, and OH and Oh the old and new equilibrium amounts. Oh is in every case greater than OH, but in fig. (27) it is only a little greater, while in fig. (28) it is much greater. (This analysis may be carried further on the plan adopted later on in discussing the similar but more important problem of the effects of changes in the conditions of normal supply.) In fig. (26) ah is of course equal to AH, in fig. (27) it is greater, in fig. (28) it is less.

The effect of a falling off of normal demand can be traced with the same diagrams, dd' being now regarded as the old and DD' as the new position of this demand curve; ah being the old equilibrium price, and AH the new one.

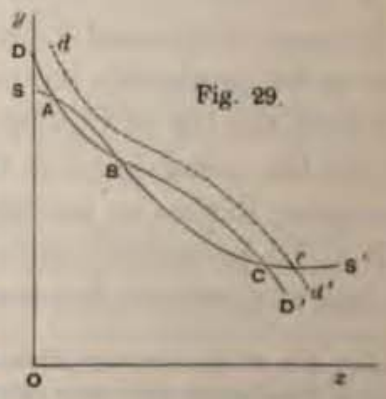


Fig. 29.

[It is interesting to trace the effect of changes of this kind when the curves cut one another several times, as in A, B and C in fig. (29). Suppose the demand curve to rise gradually, then the points of intersection corresponding to A and B will approach one another, until they coalesce. Thus whether price when in equilibrium was actually at A or at C originally (it could not have been at B, because the

The converse holds in each case should normal demand fall off instead of increasing.

Effects of increased facilities of supply.

§ 3. We have seen that an increase in normal demand, while leading in every case to an increased production, will in some cases raise and in others lower prices. But now we are to see that the lowering of the supply schedule which results from increased facilities for supply, will always lower the normal price at the same time that it leads to an increase in the amount produced. For so long as the normal demand remains unchanged an increased supply can be sold only at a diminished price; but the fall of price consequent on a given lowering of the supply schedule will be much greater in some cases than in others. It will be small if the commodity obeys the Law of Diminishing Return; because then the difficulties attendant on an increased production will tend to counteract the new facilities of supply. On the other hand if the commodity obeys the Law of Increasing Return, the increased production will bring with it increased facilities, which will co-operate with those arising from the change in the general conditions of supply; and the two together will enable a great increase in production and consequent fall in price to be attained before the fall of the supply price overtakes the fall of the demand price. If it happens that the demand is very elastic, then a small increase in the facilities of normal supply, such as a new invention, a new application of machinery, the opening up of new and cheaper sources of supply, the taking off a tax or granting a bounty, may cause an enormous increase of production and fall of price[1].

equilibrium there is unstable) it will by a sufficient rise of demand move away to c.

If the supply curve to the right of A had kept above the original demand curve but only a little above it, so as to have only one point of intersection with it, its point of intersection with the new, and slightly raised demand curve might have been a long way to the right of A; thus representing a simpler instance of the way in which a small increase in the normal demand for a commodity that obeys the Law of Increasing Return may cause a very great fall in its price and a very great increase of its consumption.]

[1] All this can be most clearly seen by the aid of diagrams, and indeed there are some parts of the problem which cannot be satisfactorily treated without their aid. The three figures (30), (31), (32) represent the three cases of constant and diminishing and increasing returns, respectively. In each case DD' is the demand curve, SS' the old position, and ss' the new position of the supply curve. A is the old, and a the new position of stable equilibrium. Oh is greater than OH, and ah

If we take account of the circumstances of composite and joint supply and demand discussed in the last chapter, we have suggested to us an almost endless variety of problems which can be worked out by the methods adopted in these two chapters.

Changes that raise or lower the supply schedule may for brevity

§ 4. We may now consider the effects which a change in the conditions of supply may exert on Consumers' Surplus or Rent. For brevity of language a tax may be taken as representative of those changes which may cause a general increase, and a bounty as representative of those

is less than AH in every case: but the changes are small in fig. (31) and great in fig. (32). Of course the demand curve must lie below the old supply curve to the right of A, otherwise A would be a point not of stable, but of unstable equilibrium.

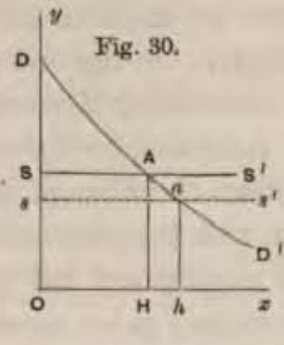


Fig. 30.

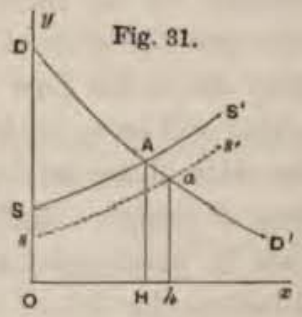


Fig. 31.

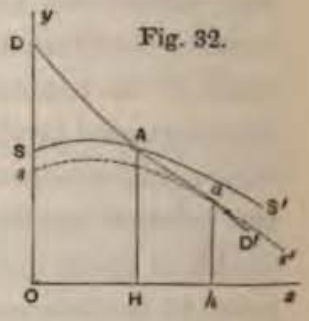


Fig. 32.

But subject to this condition the more elastic the demand is, that is the more nearly horizontal the demand curve is at A the further off will a be from A, and the greater therefore will be the increase of production and the fall of price.

The whole result is rather complex. But it may be stated thus. Firstly, given the elasticity of demand at A the increase in the quantity produced and the fall in price will both be the greater, the greater be the return got from additional capital and labour applied to the production. That is, they will be the greater, the more nearly horizontal the supply curve is at A in fig. (31), and the more steeply inclined it is in fig. (32) (subject to the condition mentioned above, that it does not lie below the demand curve to the right of A, and thus turn A into a position of unstable equilibrium). Secondly, given the position of the supply curve at A, the greater the elasticity of demand the greater will be the increase of production in every case; but the smaller will be the fall of price in fig. (31), and the greater the fall of price in fig. (32). Fig. (30) may be regarded as a limiting case of either fig. (31) or (32).

All this reasoning assumes that the commodity either obeys the Law of Diminishing Return or obeys the Law of Increasing Return throughout. If it obeys first one, and then the other, so that the supply curve is at one part inclined positively and at another negatively, no general rule can be laid down as to the effect on price of increased facilities of supply, though in every case this must lead to an increased volume of production. A great variety of curious result may be got by giving the supply curve different shapes, and in particular such as cut the demand curve more than once.

which may cause a general diminution in the normal supply price for each several amount of the commodity.

be represented by a tax or a bounty.

The case of Constant Return.

Firstly, if the commodity is one, the production of which obeys the Law of Constant Return, so that the supply price is the same for all amounts of the commodity, Consumers' Rent will be diminished by more than the increased payments to the producer; and therefore, in the special case of a tax, by more than the gross receipts of the State. For in so far as the consumption of the commodity is maintained, the consumer loses what the State receives: and on that part of the consumption which is destroyed by the rise in price, the Consumers' Rent is destroyed; and of course there is no payment for it to the producer, or to the State[1]. Conversely, the gain of Consumers' Rent caused by a bounty on a commodity that obeys the Law of Constant Return, is less than the bounty itself. For on that part of the consumption which existed before the bounty, Consumers' Rent is increased by just the amount of the bounty; while on the new consumption that is caused by the bounty, the gain of the Consumers' Rent is less than the bounty[2].

The case of Diminishing Return.

If however the commodity obey the Law of Diminishing Return, a tax by raising its price, and diminishing its consumption, will lower its expenses of production other than the tax: and the result will be to raise the supply price by something less than the full amount of the tax. In this

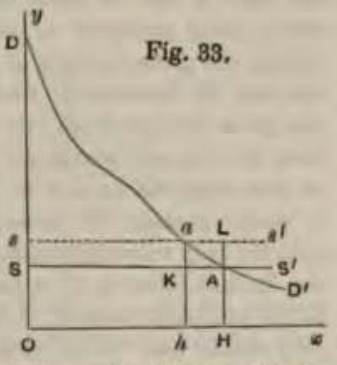


Fig. 33.

[1] This is most clearly seen by aid of a diagram. SS', the old Constant Return supply curve cuts DD' the demand curve in A: DSA is the Consumers' Rent. Afterwards a tax Ss being imposed the new equilibrium is found at a, and Consumers' Rent is Dsa. The gross tax is only the rectangle $sSKa$, that is, a tax at the rate of Ss on an amount sa of the commodity. And this falls short of the loss of Consumers' Rent by the area aKA. The net loss aKA is small or great, other things being equal, as aA is or is not inclined steeply. Thus it is smallest for those commodities the demand for which is most inelastic, that is for necessaries. If therefore a given aggregate taxation has to be levied ruthlessly from any class it will cause less loss of Consumers' Rent if levied on necessaries than if levied on comforts.

[2] If we now regard ss' as the old supply curve which is lowered to the position SS' by the granting of a bounty, we find the gain of Consumers' Rent to be $sSAa$. But the bounty paid is Ss on an amount SA, which is represented by the rectangle $sSAL$: and this exceeds the gain of Consumers' Rent by the area aLA.

case the gross receipts from the tax *may* be greater than the resulting loss of Consumers' Rent, and they *will* be greater if the Law of Diminishing Return acts so sharply that a small diminution of consumption causes a great falling off in the expenses of production other than the tax[1].

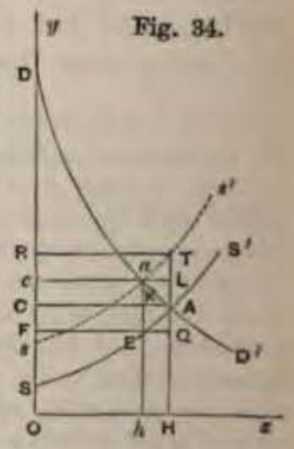
On the other hand a bounty on a commodity which obeys the Law of Diminishing Return will lead to increased production, and will extend the margin of cultivation to places and conditions in which the expenses of production, exclusive of the bounty, are greater than before. Thus it will lower the price to the consumer and increase Consumers' Rent less than if it were given for the production of a commodity which obeyed the Law of Constant Return. In that case the increase of Consumers' Rent was seen to be less than the direct cost of the bounty to the State; and therefore in this case it is much less[2].

The case of Increasing Return.

By similar reasoning it may be shown that a tax on a commodity which obeys the Law of Increasing Return is more injurious to the consumer than if levied on one which obeys the Law of Constant Return; because it diminishes Consumers' Rent by much more than the total payments

[1] Let the old supply curve be SS' (fig. 34), and let the imposition of a tax raise it to ss'; let A and a be the old and new positions of equilibrium, and let straight lines be drawn through them parallel to Ox and Oy, as in the figure. Then the tax being levied, as shown by the figure, at the rate of aE on each unit; and Oh, that is CK units, being produced in the new position of equilibrium, the gross receipts of the tax will be $cFEa$, and the loss of Consumers' Rent will be $cCAa$; that is, the gross receipts from the tax will be greater or less than the loss of Consumers' Rent as $CFEK$ is greater or less than aKA; and in the figure as it stands it is much greater. If however we had drawn SS' to indicate only very slight action of the Law of Diminishing Return, that is, if it had been nearly horizontal in the neighbourhood of A, then EK would have been very small; and $CFEK$ would have become less than aKA.

Fig. 34.



[2] To illustrate this case we may take ss' in fig. (34) to be the position of the supply curve before the granting of the bounty, and SS' to be its position afterwards. Thus a was the old equilibrium point, and A is the point to which the equilibrium moves when the bounty is awarded The increase of Consumers' Rent is only $cCAa$, while the payments made by the State under the bounty are, as shown by the figure, at the rate of AT on each unit of the commodity; and as in the new position of equilibrium there are produced OH, that is, CA units, they

which it brings in[1]. On the other hand a bounty on such a commodity causes so great a fall in its price to the consumer, that the consequent increase of Consumers' Rent may exceed the total payments made by the State to the producers; and certainly will do so in case the Law of Increasing Return acts at all sharply[2].

These results throw light on the doctrine of Maximum Satisfaction.

These results are suggestive of some principles of taxation which will require our careful study hereafter; when we shall take account of the expenses of collecting a tax and of administering a bounty, and of the many indirect effects, some economic and some moral, which a tax or a bounty is likely to produce. But the present form of these results is well adapted for our immediate purpose of examining a little more closely than we have done hitherto the general doctrine that a position of (stable) equilibrium of demand and supply is a position also of *Maximum Satisfaction*. That is a doctrine which needs to be interpreted carefully.

There is a limited sense in which the doctrine is generally true.

§ 5. There is indeed one interpretation of the doctrine according to which every position of equilibrium of demand and supply[3] may fairly be regarded as a position of maximum satisfaction. For it is true that so long as the demand price

amount altogether to $RCAT$ which includes and is necessarily greater than the increase of Consumers' Rent.

[1] Thus taking SS' in fig. (35) to be the old position of the supply curve, and ss' its position after the tax, A to be the old and a the new positions of equilibrium, we have, as in the case of fig. (34), the total tax represented by $cFEa$, and the loss of Consumers' Rent by $cCAa$; the former being always less than the latter.

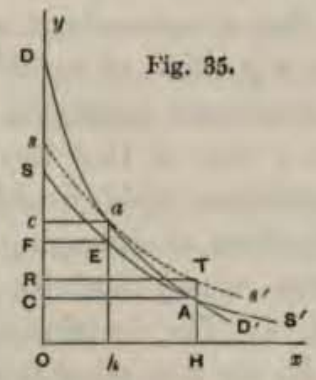


Fig. 35.

[2] To illustrate this case we may take ss' in fig. (35) to be the position of the supply curve before the granting of the bounty, and SS' to be its position afterwards. Then, as in the case of fig. (34), the increase of Consumers' Rent is represented by $cCAa$, while the direct payments made by the State under the bounty are represented by $RCAT$. As the figure is drawn, the former is much larger than the latter. But it is true that if we had drawn ss' so as to indicate a very slight action of the Law of Increasing Return, that is, if it had been very nearly horizontal in the neighbourhood of a, the bounty would have increased relatively to the gain of Consumers' Rent; and the case would have differed but little from that of a bounty on a commodity which obeys the Law of Constant Return, represented in fig. (33).

[3] Unstable equilibrium may now be left out of account.

is in excess of the supply price, exchanges can be effected at prices which give a surplus of satisfaction to buyer or to seller or to both. The (marginal) utility of what he receives is greater than that of what he gives up, to at least one of the two parties, while the other, if he does not gain by the exchange, yet does not lose by it. So far then every step in the exchange increases the aggregate satisfaction of the two parties. But when equilibrium has been reached, demand price being now equal to supply price, there is no room for any such surplus: the (marginal) utility of what each receives no longer exceeds that of what he gives up in exchange; and when the production increases beyond the equilibrium amount, the demand price being now less than the supply price, no terms can be arranged which will be acceptable to the buyer, and will not involve a loss to the seller.

It is true then that a position of equilibrium of demand and supply is a position of maximum satisfaction in this limited sense, that the aggregate satisfaction of the two parties concerned increases until that position is reached; and that any production beyond the equilibrium amount could not be permanently maintained so long as buyers and sellers acted freely as individuals, each in his own interest.

But when not taken in this limited sense, the doctrine is open to great exceptions.

But occasionally it is stated, and very often it is implied, that a position of equilibrium of demand and supply is one of maximum aggregate satisfaction in the full sense of the term: that is that any increase of production beyond the equilibrium level would directly (i.e. independently of the difficulties of arranging for it, and of any indirect evils it might cause) diminish the aggregate satisfaction of both parties. The doctrine so interpreted is not universally true.

It assumes that equal sums of money measure equal utilities to all concerned;

In the first place it assumes that all differences in wealth between the different parties concerned may be neglected, and that the satisfaction which is rated at a shilling by any one of them, may be taken as equal to one that is rated at a shilling by any other. Now it is obvious that, if the producers were as a class very much poorer than the consumers, the aggregate satisfaction might be increased by a stinting of supply when it would cause a great rise in

demand price (i.e. when the demand is inelastic); and that if the consumers were as a class much poorer than the producers, the aggregate satisfaction might be increased by extending the production beyond the equilibrium amount and selling the commodity at a loss. This point however may well be left for future consideration. It is in fact only a special case of the broad proposition that the aggregate satisfaction can *primâ facie* be increased by the distribution, whether voluntarily or compulsorily, of some of the property of the rich among the poor; and it is reasonable that the bearings of this proposition should be set aside during the first stages of an inquiry into existing economic conditions. This assumption therefore may be properly made, provided only it is not allowed to slip out of sight.

and it ignores the fact that a fall in price due to improvements in industrial organization benefits consumers without injuring producers.

But in the second place the doctrine of Maximum Satisfaction assumes that every fall in the price which producers receive for the commodity, involves a corresponding loss to them; and this is not true of a fall in price which results from improvements in industrial organization. When a commodity obeys the Law of Increasing Return, an increase in its production beyond equilibrium point may cause the supply price to fall much; and though the demand price for the increased amount may be reduced even more, so that the production would result in some loss to the producers, yet this loss may be very much less than that money value of the gain to purchasers which is represented by the increase of Consumers' Rent.

Aggregate satisfaction can therefore *primâ facie* be increased beyond the level attained by the free play of demand and supply.

In the case then of commodities with regard to which the Law of Increasing Return acts at all sharply, or in other words for which the normal supply price diminishes rapidly as the amount produced increases, the direct expense of a bounty sufficient to call forth a greatly increased supply at a much lower price, would be much less than the consequent increase of Consumers' Rent. And if a general agreement could be obtained among consumers, terms might be arranged which would make such action amply remunerative to the producers, at the same time that they left a large balance of advantage to the consumers [1].

[1] Though not of great practical importance, the case of multiple positions

We are not here concerned with the indirect evils of artificial arrangements for this purpose.

One simple plan would be the levying of a tax by the community on their own incomes, or on the production of goods which obey the Law of Diminishing Return, and devoting the tax to a bounty on the production of those goods with regard to which the Law of Increasing Return acts sharply. But before deciding on such a course they would have to take account of considerations, which are not within the scope of the general theory now before us, but are yet of great practical importance. They would have to reckon up the direct and indirect costs of collecting a tax and administering a bounty; the difficulty of securing that the burdens of the tax and the benefits of the bounty were equitably distributed; the openings for fraud and corruption; and the danger that in the trade which had got a bounty and in other trades which hoped to get one, people would divert their energies from managing their own businesses to managing those persons who control the bounties.

Besides these semi-ethical questions there will arise others of a strictly economic nature, relating to the effects which any particular tax or bounty may exert on the interests of landlords, urban or agricultural, who own land adapted for the production of the commodity in question. These are questions which must not be overlooked; but they differ so much in their detail that they cannot fitly be discussed here[1].

of (stable) equilibrium offers a good illustration of the error involved in the doctrine of maximum satisfaction when stated as a universal truth. For the position in which a small amount is produced and is sold at a high price would be the first to be reached, and when reached would be regarded according to that doctrine as that which gave the absolute maximum of aggregate satisfaction. But another position of equilibrium corresponding to a larger production and a lower price would be equally satisfactory to the producers, and would be much more satisfactory to the consumers; the excess of Consumers' Rent in the second case over the first would represent the increase in aggregate satisfaction.

[1] The incidence of a tax on agricultural produce will be discussed later on by the aid of diagrams similar to those used to represent the fertility of land (Book IV. Ch. III.). Landlords' rent absorbs a share of the aggregate selling price of almost all commodities: but it is most prominent in the case of those which obey the Law of Diminishing Return; and an assumption of no very great violence will enable fig. (34) to represent roughly the leading features of the problem.

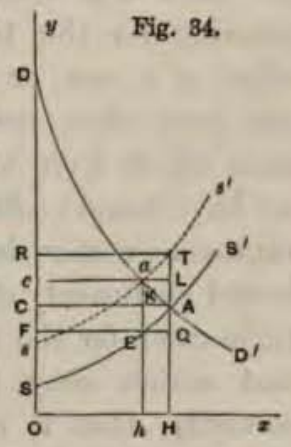
We have already seen (Note on p. 429) that we are not properly at liberty to assume that the expenses of raising the produce from the richer lands and

Restatement of *primâ facie* exceptions to the doctrine of Economic Harmony that it is best for all that each should spend his income as he pleases.

§ 6. Enough has been said to indicate the character of the second great limitation which has to be introduced into the general doctrine of Economic Harmony, which asserts that the Maximum Satisfaction is generally to be attained by encouraging each individual to spend his own resources in that way which suits him best. We have already noticed that if he spends his income in such a way as to increase the demand for the services of the poor and to increase their incomes, he adds something more to the total happiness than if he adds an equal amount to the incomes of the rich, because the happiness which an additional shilling brings to a poor man is much greater than that which it brings to a rich one; and that he does good by buying things the production of which raises, in preference

under the more favourable circumstances are independent of the extent to which the production is carried; since an increased production is likely to lead to an improved organization, if not of farming industries themselves yet of those subsidiary to them, and especially of the carrying trade. We may however permit ourselves to make this assumption provisionally, so as to get a clear view of the broad outlines of the problem; though we must not forget that in any applications of the general reasonings based on it account must be taken of the facts which we here ignore. On this assumption then *SS'* being the supply curve before the imposition of a tax, landlords' rent is represented by *CSA*. After the tax has been imposed and the supply curve raised to *ss'* the landlords' rent becomes the amount by which *cOha*, the total price got for *Oh* produce sold at the rate *ha*, exceeds the total tax *cFEa*, together with *OhES* the total expenses of production, exclusive of rent, for *Oh* produce: that is, it becomes *FSE*. (In the figure the curve *ss'* has the same shape as *SS'*, thereby implying that the tax is *specific*; that is, is a uniform charge on each unit of the commodity whatever be its value. The argument so far does not depend on this assumption, but if it is made we can by a shorter route get the new landlords' rent at *csa*, which then is equal to *FSE*.) Thus the loss of landlords' rent is *CFEA*; and this added to *cCAa* the loss of Consumers' Rent, makes up *cFEAa*, which exceeds the gross tax by *aAE*.

Fig. 34.



On the other hand the direct payments under a bounty would exceed the increase of Consumers' Rent, and of landlords' rent calculated on the above assumptions. For taking *ss'* to be the original position of the supply curve, and *SS'* to be its position after the bounty, the new landlords' rent on these assumptions is *CSA*, or which is the same thing *RST*; and this exceeds the old landlords' rent *csa* by *RcaT*. The increase of Consumers' Rent is *cCAa*; and therefore the total bounty, which is *RCAT*, exceeds the gain of Consumers' Rent and landlords' rent together by *TaA*.

to things the production of which lowers the character of those who make them. But further, even if we assume that a shilling's worth of happiness is of equal importance to whomsoever it comes; and that every shilling's worth of Consumers' Rent is of equal importance from whatever commodity it is derived, we have to admit that the manner in which a person spends his income is a matter of direct economic concern to the community. For in so far as he spends it on things which obey the Law of Diminishing Return, he makes those things more difficult to be obtained by his neighbours, and thus lowers the real purchasing power of their incomes; while in so far as he spends it on things which obey the Law of Increasing Return, he makes those things more easy of attainment to others, and thus increases the real purchasing power of their incomes.

Again it is commonly argued that an equal *ad valorem* tax levied on all economic commodities (material and immaterial), or which is the same thing a tax on expenditure, is *primâ facie* the best tax; because it does not divert the expenditure of individuals out of its natural channels: we have now seen that this argument is invalid. But ignoring for the time the fact that the direct economic effect of a tax or a bounty never constitutes the whole, and very often not even the chief part of the considerations which have to be weighed before deciding to adopt it, we have found:—firstly, that a tax on expenditure in general causes a greater destruction of Consumers' Rent than one levied exclusively on commodities as to which there is but little room for the economies of production on a large scale, and which obey the Law of Diminishing Return; and secondly, that it might even be for the advantage of the community that the government should levy taxes on commodities which obey the Law of Diminishing Return, and spend part of the proceeds on bounties to commodities which obey the Law of Increasing Return.

These conclusions, it will be observed, do not by themselves afford a valid ground for Government interference; for the indirect evils of that are likely to outweigh any direct good that it may do. But they show that much remains to be

done, by a careful collection of the statistics of demand and supply, and a scientific interpretation of their results, in order to discover what are the limits of the work that society can with advantage do towards turning the economic actions of individuals into those channels in which they will add the most to the sum total of happiness[1].

[1] It is remarkable that Malthus, *Political Economy*, Ch. III. § 9, argued that, though the difficulties thrown in the way of importing foreign corn during the great war turned capital from the more profitable employment of manufacture to the less profitable employment of agriculture, yet if we take account of the consequent increase of agricultural rent, we may conclude that the new channel may have been one of "higher national, though not higher individual profits." In this no doubt he was right; but he overlooked the far more important injury inflicted on the public by the consequent rise in the price of corn, and the consequent destruction of Consumers' Rent. Senior takes account of the interests of the consumer in his study of the different effects of increased demand on the one hand and of taxation on the other in the case of agricultural and manufactured produce (*Political Economy*, pp. 118—123). Advocates of Protection in countries which export raw produce have made use of arguments tending in the same direction as those given in this chapter; and similar arguments are now used, especially in America (as for instance by Mr H. C. Adams), in support of the active participation of the State in industries which conform to the Law of Increasing Return. And Mr Fleeming Jenkin applied the graphic method in a manner somewhat similar to that adopted in the present Chapter.

CHAPTER VIII.

THE THEORY OF MONOPOLIES.

We are now to compare the monopolist's gains from a high price with the benefits to the public of a low price.

§ 1. THE doctrine of Maximum Satisfaction has never been applied to the demand for a supply of monopolized commodities. It has never been supposed that the monopolist in seeking his own advantage is naturally guided in that course which is most conducive to the wellbeing of society regarded as a whole, he himself being reckoned as of no more importance than any other member of it. But there is much to be learnt from a study of the relations in which his interests stand to those of the rest of society, and of the general conditions under which it might be possible to make arrangements more beneficial to society as a whole than those which he would adopt if he consulted only his own interests: and with this end in view we are now to seek for a scheme for comparing the relative quantities of the benefits which may accrue to the public and to the monopolist from the adoption of different courses of action by him.

At a later stage we shall have to study the Protean shapes of modern trade combinations and monopolies, some of the most important of which, as for example "Trusts," are of very recent growth. At present we have to consider only those general causes determining monopoly values, that can be traced with more or less distinctness in every case in

which a single person or association of persons has the power of fixing either the amount of a commodity that is offered for sale, or the price at which it is offered.

The *primâ facie* interest of the monopolist is to get the maximum net revenue.

§ 2. The *primâ facie* interest of the owner of a monopoly is clearly to adjust the supply to the demand, not in such a way that the price at which he can sell his commodity shall just cover its expenses of production, but in such a way as to afford him the greatest possible total net revenue.

The difficulties in the way of interpreting this term

But here we meet with a difficulty as to the meaning of the term net revenue. For the supply price of a freely produced commodity includes normal profits, the whole of which, or at all events what remains of them after deducting interest on the capital employed and insurance against loss, is often classed indiscriminately as net revenue. And when a man manages his own business he often does not distinguish carefully that portion of his profits which really is his own earnings of management from any exceptional gains arising from the fact that the business is to some extent of the nature of a monopoly.

can be evaded by taking the case of a public company and separating interest on its capital from its Monopoly Revenue proper.

This difficulty however is in a great measure avoided in the case of a public company; where all, or nearly all, the expenses of management are entered in the ledger as definite sums, and are subtracted from the total receipts of the company before its net income is declared.

The net income divided among the shareholders includes interest on the capital invested and insurance against risk of failure, but little or no earnings of management; so that the amount by which the dividends are in excess of what may fairly be allowed as interest and insurance, is the Monopoly Revenue which we are seeking.

Since then it is much easier to specify exactly the amount of this net revenue when a monopoly is owned by a public company than when it is owned by an individual or private firm, let us take as our typical instance the case of a gas company that has the monopoly of the supply of gas to a town. For the sake of simplicity the company may be supposed to have already invested the whole of its own capital in fixed plant, and to borrow any more capital, that it

may want to extend its business, on debentures at a fixed rate of interest.

The supply schedule must be drawn on a special plan.

§ 3. The demand schedule for gas remains the same as it would be if gas were a freely produced commodity; it specifies the price per thousand feet at which consumers in the town will between them use any given number of feet. But the supply schedule must represent the normal expenses of production of each several amount supplied; and these include interest on all its capital, whether belonging to its shareholders or borrowed on debentures, at a fixed normal rate; they include also the salaries of its directors, and permanent officials adjusted (more or less accurately) to the work required of them, and therefore increasing with an increase in the output of gas. The Monopoly Revenue of the company may then be set out in a MONOPOLY REVENUE SCHEDULE, which is to be constructed thus:—Having set against each several amount of the commodity its demand price, and its supply price estimated on the plan just described, subtract each supply price from the corresponding demand price and set the residue in the Monopoly Revenue column against the corresponding amount of gas.

The *Monoply Revenue Schedule.*

Thus for instance if a thousand million feet could be sold annually at a price of 3*s.* per thousand feet, and the supply price for this amount were 2*s.* 9*d.* per thousand feet, the Net Revenue schedule would show 3*d.* against this amount; indicating an aggregate Net Revenue when this amount was sold, of three million pence, or £12,500. The aim of the company having regard only to their own immediate dividends will be to fix the price of their gas at such a level as to make this aggregate net revenue the largest possible[1].

[1] Thus DD' being the demand curve, and SS' the curve corresponding to the supply schedule described in the text, let MP_2P_1 be drawn vertically from any point M in Ox, cutting SS' in P_2 and DD' in P_1; and from it cut off $MP_3 = P_2P_1$, then the locus of P_3 will be our third curve, QQ', which we may call the MONOPOLY REVENUE CURVE. The supply price for a small quantity of gas will of course be very high; and in the neighbourhood of Oy the supply curve will be above the demand curve, and therefore the net revenue curve will be below Ox. It will cut Ox in K and again in H, points which are vertically under B and A, the two points of intersection of the demand and supply curves. The maximum Monopoly Revenue will then be obtained by finding a point q_3 on QQ'

§ 4. Now suppose that a change takes place in the conditions of supply; some new expense has to be incurred,

such that Lq_3 being drawn perpendicular to Ox, $OL \times Lq_3$ is a maximum. Lq_3 being produced to cut SS' in q_2 and DD' in q_1, the company, if desiring to obtain the greatest immediate Monopoly Revenue, will fix the price per thousand feet at Lq_1, and consequently will sell OL thousand feet; the expenses of production will be Lq_2 per thousand feet, and the aggregate net revenue will be $OL \times q_2q_1$, or which is the same thing $OL \times Lq_3$.

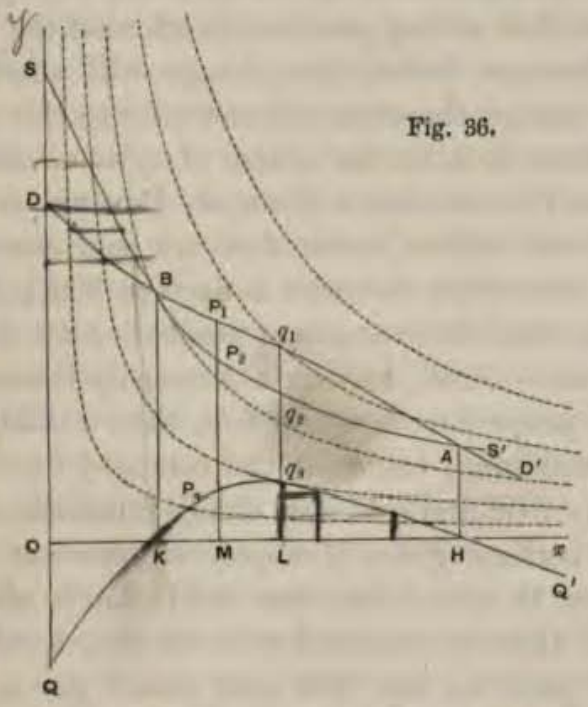


Fig. 36.

The dotted lines in the diagram are known to mathematicians as rectangular hyperbolas; but we may call them "Constant Revenue curves": for they are such that if from a point on any one of them lines be drawn perpendicular to Ox and Oy respectively, (the one representing revenue per thousand feet and the other representing the number of thousand feet sold,) then the product of these will be a constant quantity for every point on one and the same curve. This product is of course a smaller quantity for the inner curves, those nearer Ox and Oy, than it is for the outer curves. And consequently since P_2 is on a smaller constant revenue curve than q_3 is, $OM \times MP_2$ is less than $OL \times Lq_3$. It will be noticed that q_3 is the point in which QQ' touches one of these curves. That is, q_3 is on a larger constant revenue curve than is any other point on QQ'; and therefore $OL \times Lq_3$ is greater than $OM \times MP_2$ not only in the position given to M in the figure, but also in any position that M can take along Ox. That is to say, q_3 has been correctly determined as the point on QQ' corresponding to the maximum total Monopoly Revenue. And thus we get the rule:— If through that point in which QQ' touches one of a series of constant revenue curves, a line be drawn vertically to cut the demand curve, then the distance of that point of intersection from Ox will be the price at which the commodity should be offered for sale in order that it may afford the maximum Monopoly revenue. (See Mathematical Note, XXI.)

or some old expense can be avoided; or perhaps a new tax is imposed on the undertaking or a bounty is awarded to it.

A tax, fixed in total amount, on a monopoly, will not diminish production;

First let this increase or diminution of the expenses be a fixed sum, bearing on the undertaking as one undivided whole and not varying with the amount of the commodity produced. Then, whatever be the price charged and the amount of the commodity sold, the Monopoly Revenue will be increased or diminished, as the case may be, by this sum; and therefore that selling price which afforded the maximum Monopoly Revenue before the change will afford it afterwards; the change therefore will not offer to the monopolist any inducement to alter his course of action. Suppose for instance that the maximum Monopoly Revenue is got when twelve hundred million cubic feet are sold annually; and that this is done when the price is fixed at 30*d.* per thousand feet: suppose that the expenses of production for this amount are at the rate of 26*d.*, leaving a Monopoly Revenue at the rate of four pence per thousand feet, that is £20,000 in all. This is its maximum value: if the company fixed the price higher at, say, 31*d.* and sold only eleven hundred million feet, they would perhaps get a Monopoly Revenue at the rate of 4·2 pence per thousand feet, that is £19,250 in all; while in order to sell thirteen hundred millions they would have to lower their price to, say, 28*d.* and would get a Monopoly Revenue at the rate of perhaps 3·6*d.* per thousand feet, that is £19,500 in all. Thus by fixing the price at 30*d.* they get £750 more than by fixing it at 31*d.*, and £500 more than by fixing it at 28*d.* Now let a tax of £10,000 a year be levied on the gas company as a fixed sum independent of the amount they sell. Their Monopoly Revenue will become £10,000 if they charge 30*d.*, £9,250 if they charge 31*d.*, and £9,500 if they charge 28*d.* They will therefore continue to charge 30*d.*

nor will one proportioned to Monopoly Revenue,

The same is true of a tax or a bounty proportioned not to the gross receipts of the undertaking, but to its Monopoly Revenue. For suppose next that a tax is levied, not of one fixed sum, but a certain percentage, say 50 per cent. of the Monopoly Revenue. The company will then retain a Monopoly Revenue of £10,000 if they charge 30*d.*, of £9,625

if they charge 31*d.*, and of £9,750 if they charge 28*d.* They will therefore still charge 30*d.*[1]

It should however be noticed that if a tax or other new additional expense exceeds the maximum Monopoly Revenue, it will prevent the monopoly from being worked at all; it will convert the price which had afforded the maximum Monopoly Revenue into the price which would reduce to a minimum the loss that would result from continuing to work the monopoly: and conversely with regard to a fixed bounty or other fixed diminution of aggregate working expenses.

but it will have that effect if it is proportional to the quantity produced.

But a change in the total expenses of working a monopoly, whether due to a tax, a bounty, or any other cause, is more likely than not to vary in the same direction as the amount of the commodity produced: and then it will affect the monopolist's action. A tax proportional to the amount produced causes a greater total loss of Monopoly Revenue when the amount produced is large than when it is small; and we shall find that it causes the sales which afford the maximum revenue to be somewhat smaller than before, and offers an inducement to the monopolist to raise his price and contract his sales. If before the imposition of the tax, the net Revenue was only a little greater than that which would have been afforded by much smaller sales, then the monopolist would gain by reducing his production very greatly; and hence in such cases as this, the change is likely to cause a very great diminution of production and rise of price. The opposite effects will be caused by a change which diminishes the expense of working the monopoly by a sum that varies directly with the amount produced under it.

In the last example, for instance, a tax of 2*d.* on each thousand feet sold would have reduced the Monopoly Revenue

[1] If to the expenses of working a monopoly there be added (by a tax or otherwise) a lump sum independent of the amount produced, the result will be to cause every point on the Monopoly Revenue curve to move downwards to a point on a Constant Revenue curve representing a constant revenue smaller by a *fixed amount* than that on which it lies. Therefore the maximum revenue point on the new Monopoly Revenue curve lies vertically below that on the old: that is, the selling price and the amount produced remain unchanged. As to the effects of a tax proportional to Monopoly Revenue, see Mathematical Note XXII.

to £10,083 if the company charged 31*d.* per thousand feet and therefore sold eleven hundred millions; to £10,000 if they charged 30*d.* and therefore sold twelve hundred millions, and to £8,666 if they charged 28*d.* and therefore sold thirteen hundred million feet. Therefore the tax would induce the company to raise the price to something higher than 30*d.*; they would perhaps go to 31*d.*, perhaps somewhat higher; for the figures before us do not show exactly how far it would be their interest to go.

On the other hand, if there were a bounty of 2*d.* on the sale of each thousand feet, the Monopoly Revenue would rise to £28,416 if they charged 31*d.*, to £30,000 if they charged 30*d.*, and to £30,333 if they charged 28*d.*: it would therefore cause them to lower the price[1].

[1] In the text it is supposed that the tax or bounty is directly proportional to the sales: but the argument, when closely examined, will be found to involve no further assumption than that the aggregate tax or bounty increases with every increase in that amount: the argument does not really require that it should increase in exact proportion to that amount.

Much instruction is to be got by drawing diagrams to represent various conditions of demand and of (monopoly) supply, with the resultant shapes of the Monopoly Revenue curve. A careful study of the shapes thus obtained will give more assistance than any elaborate course of reasoning in the endeavour to realize the multiform action of economic forces in relation to monopolies. A tracing may be made on thin paper of the Constant Revenue curves in one of the diagrams; and this, when laid over a Monopoly Revenue curve, will indicate at once the point, or points, of maximum revenue. For it will be found, not only when the demand and supply curves cut one another more than once, but also when they do not, there will often be, as in fig. (37), several points on a Monopoly Revenue curve at which it touches a Constant Revenue curve. Each of these points will show a true maximum Monopoly Revenue; but one of them will generally stand out pre-eminent as being on a larger Constant Revenue curve than any of the others and therefore indicating a larger Monopoly Revenue than they.

If it happens, as in fig. (37), that this chief maximum q'_2 lies a long way to the right of a smaller maximum q_2, then the imposition of a tax on the commodity, or any other change that raised its supply curve throughout, would lower by an equal amount the Monopoly Revenue curve. Let the supply curve be raised from SS' to the position $\Sigma\Sigma'$; and in consequence let the Monopoly Revenue curve fall from its old position QQ' to ZZ'; then the chief point of maximum revenue will move from q'_2 to z_2, representing a great diminution of production, a great rise of price and a great injury to the consumers. The converse effects of any change, such as a bounty on the commodity, which lowers its supply price throughout and raises the Monopoly Revenue curve, may be seen by regarding ZZ' as the old and QQ' as the new position of that curve. It will be obvious on a little consideration (but the fact may with advantage be illustrated by drawing suitable diagrams), that the more nearly the Monopoly

In comparing monopoly price with competition price,

§ 5. The monopolist would lose all his Monopoly Revenue if he produced for sale an amount so great that its supply price, as here defined, was equal to its demand price: the amount which gives the maximum Monopoly Revenue is always considerably less than that. It may therefore appear as though the amount produced under a monopoly is always less and its price to the consumer always higher than if there were no monopoly. But this is not the case.

it must be remembered that a monopoly can generally be worked economically.

For when the production is all in the hands of one person or company, the total expenses involved are generally less than would have to be incurred if the same aggregate production were distributed among a multitude of comparatively small rival producers. They would have to struggle with one another for the attention of consumers, and would necessarily spend in the aggregate a great deal more on advertising in all its various forms than a single firm would; and they would be less able to avail themselves

Revenue curve approximates to the shape of a Constant Revenue curve, the greater will be the change in the position of the maximum revenue point which results from any given alteration in the expenses of production of the commodity generally. This change is great in fig. (37) not because DD' and SS' intersect

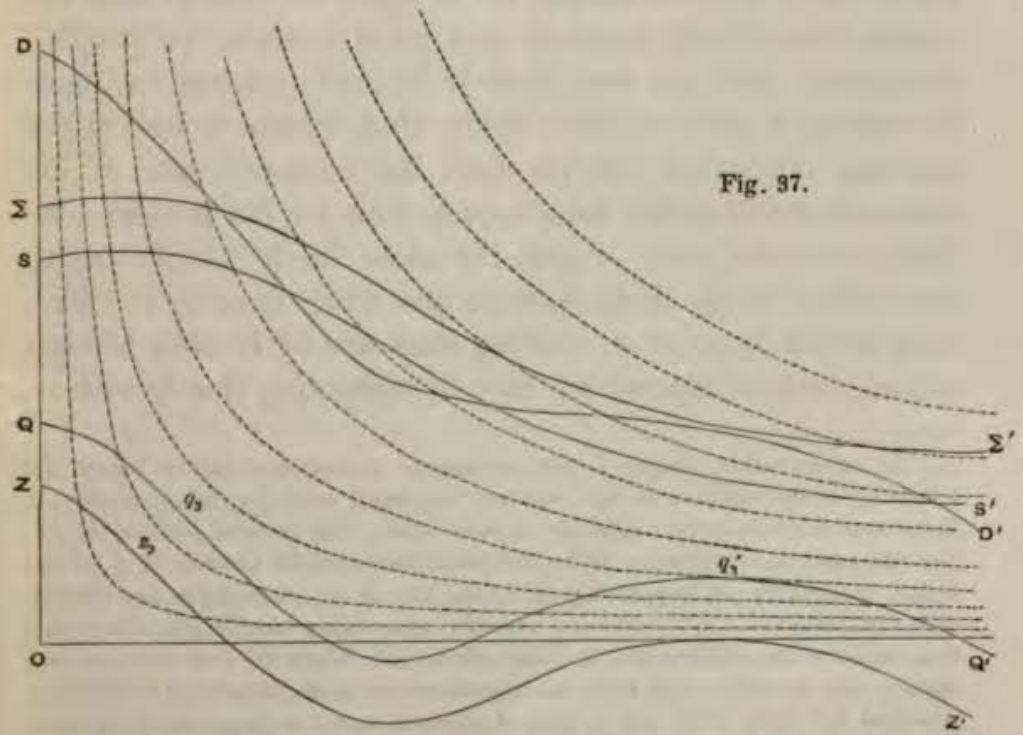


Fig. 37.

more than once, but because two parts of QQ', one a long way to the right of the other, lie in the neighbourhood of the same Constant Revenue curve.

of the many various economies which result from production on a large scale. In particular they could not afford to spend as much on improving methods of production and the machinery used in it, as a single large firm which knew that it was certain itself to reap the whole benefit of any advance it made.

This argument does indeed assume the single firm to be managed with ability and enterprise, and to have an unlimited command of capital—an assumption which cannot always be fairly made. But where it can be made, we may generally conclude that the supply schedule for the commodity if not monopolized would show higher supply prices than those of our monopoly supply schedule; and therefore the equilibrium amount of the commodity produced under free competition would be less than that for which the demand price is equal to the monopoly supply price[1].

And the monopolist may lower his price with a view to the future development of his business,

§ 6. So far we have supposed the owner of a monopoly to fix the price of his commodity with exclusive reference to the immediate net revenue which he can derive from it. But in fact, even if he does not concern himself with the interests of the consumers, he is likely to reflect that the demand for a thing depends in a great measure on people's familiarity with it; and that if he can increase his sales by taking a price a little below that which would afford him the maximum net revenue, the increased use of his commodity will before long recoup him for his present loss. The lower the price of gas, the more likely people are to have it laid on to their houses; and when once it is there, they are likely to go on making some use of it even though a rival, such as mineral oil, may be competing closely with it.

[1] In other words, though L lies necessarily a good deal to the left of H, according to the notation in fig. (36); yet the supply curve for the commodity, if there were no monopoly, might lie so much above the present position of SS' that its point of intersection with DD' would lie much to the left of A in the figure, and might not improbably lie to the left of L. Something has already been said (Book IV. Ch. XI. and XII.), as to the advantages which a single powerful firm has over its smaller rivals in those industries in which the Law of Increasing Return acts strongly; and as to the chance which it might have of obtaining a practical monopoly of its own branch of production, if it were managed for many generations together by people whose genius, enterprise and energy equalled those of the original founders of the business.

The case is stronger when a railway company has a practical monopoly of the transport of persons and goods to a sea-port, or to a suburban district which is as yet but partly built over; the railway company may then find it worth while, as a matter of business, to levy charges much below those which would afford the maximum net revenue, in order to get merchants into the habit of using the port, to encourage the inhabitants of the port to develop their docks and warehouses; or to assist speculative builders in the new suburb to build houses cheaply and to fill them quickly with tenants, thus giving to the suburb an air of early prosperity which goes far towards insuring its permanent success.

In such cases as these a railway company though not pretending to any philanthropic motives, yet finds its own interests so closely connected with those of the purchasers of its services, that it gains by making some temporary sacrifice of net revenue with the purpose of increasing Consumers' Rent. And an even closer connection between the interests of the producers and the consumers is found when the landowners of any district combine to make a branch railway through it, without much hope that the traffic will afford the market rate of interest on the capital which they invest—that is, without much hope that the Monopoly Revenue of the railway, as we have defined it, will be other than a negative quantity—but expecting that the railway will add so much to the value of their property as to make their venture on the whole a profitable one. And when a municipality undertakes the supply of gas or water, or facilities for transport by improved roads, by new bridges, or by tramways, the question always arises whether the scale of charges should be high, so as to afford a good net revenue and relieve the pressure on the rates; or should be low, so as to increase Consumers' Rent.

or from a direct interest in the welfare of consumers.

§ 7. It is clear then that some study is wanted of calculations by which a monopolist should govern his actions if he regards an increase of Consumers' Rent as equally desirable to him, if not with an equal increase of his own Monopoly Revenue, yet with an increase, say, one half or one quarter as great.

The *Total Benefit* of a monopoly is the sum of the Monopoly Revenue and Consumers' Rent.

If the Consumers' Rent which arises from the sale of the commodity at any price, is added to the Monopoly Revenue derived from it, the sum of the two is the money measure of the net benefits accruing from the sale of the commodity to producers and consumers together, or as we may say the TOTAL BENEFIT of its sale. And if the monopolist regards a gain to the consumers as of equal importance with an equal gain to himself, his aim will be to produce just that amount of the commodity which will make this Total Benefit a maximum[1].

[1] In fig. (38) DD', SS', and QQ' represent the demand, supply, and Monopoly Revenue curves drawn on the same plan as in fig. (36). From P_1 draw P_1F perpendicular to Oy; then DFP_1 is the Consumers' Rent derived from the sale of OM thousand feet of gas at the price MP_1. In MP_1 take a point P_4 such that $OM \times MP_4$ = the area DFP_1: then as M moves from O along Ox, P_4 will trace out our fourth curve, OR, which we may call the CONSUMERS' RENT CURVE. (Of course it passes through O, because when the sale of the commodity is reduced to nothing, the Consumers' Rent also vanishes.)

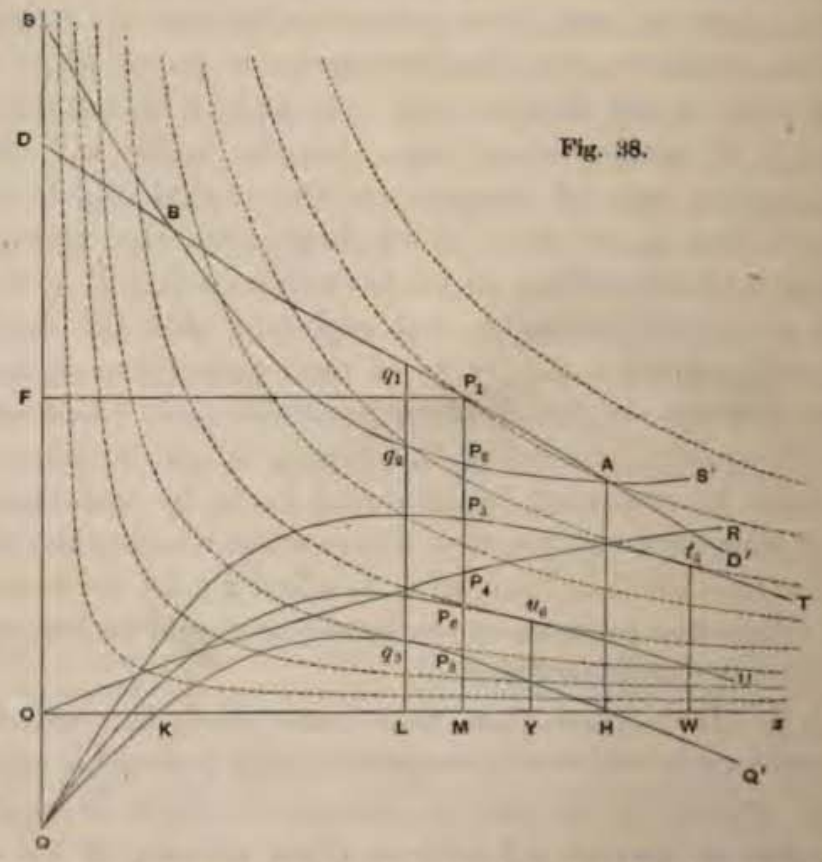


Fig. 38.

Next from P_3P_1 cut off P_3P_5 equal to MP_4, so that $MP_5 = MP_3 + MP_4$. Then $OM \times MP_5 = OM \times MP_3 + OM \times MP_4$: but $OM \times MP_3$ is the total Monopoly Revenue when an amount OM is being sold at a price MP_1, and $OM \times MP_4$ is the

But it will seldom happen that the monopolist can and will treat £1 of Consumers' Rent as equally desirable with £1 of Monopoly Revenue. Even a Government which considers its own interests coincident with those of the people has to take account of the fact that, if it abandons one source of revenue, it must in general fall back on others which have their own disadvantages. For they will necessarily involve friction and expense in collection, together with some injury to the public, of the kind which we have described as a loss of Consumers' Rent: and they can never be adjusted with perfect fairness, especially when account is taken of the unequal shares that different members of the community will get of the benefits for the sake of which it is proposed that the Government should forego some of its revenue.

But if the Consumers' Rent be counted at only a fraction of its actual value, the sum of the two may be called *Compromise Benefit*.

Suppose then that the monopolist makes a compromise, and reckons £1 of Consumers' Rent as equivalent to say 10*s*. of Monopoly Revenue. Let him calculate the Monopoly Revenue to be got from selling his commodity at any given price, and to it let him add one half the corresponding Consumers' Rent: the sum of the two may be called the COMPROMISE BENEFIT; and his aim will be to fix on that price which will make the Compromise Benefit as large as possible [1].

corresponding Consumers' Rent. Therefore $OM \times MP_5$ is the sum of the Monopoly Revenue and the Consumers' Rent, that is the (money measure of the) Total Benefit which the community will derive from the commodity when an amount OM is produced. The locus of P_5 is our fifth curve, QT, which we may call the TOTAL BENEFIT CURVE. It touches one of the Constant Revenue Curves at t_5, and this shows that the (money measure of the) Total Benefit is a maximum when the amount offered for sale is OW; or, which is the same thing, when the price of sale is fixed at the demand price for OW.

[1] If he compromises on the basis that £1 of Consumers' Rent is equally desirable with £n of Monopoly Revenue, n being a proper fraction, let us take a point P_6 in P_5P_5 such that $P_5P_6 = n \,.\, P_5P_5$, or, which is the same thing, nMP_4. Then $OM \times MP_6 = OM \times MP_5 + nOM \times MP_4$; that is, it is equal to the Monopoly Revenue derived from selling an amount OM_1 of the commodity at the price MP_1, + n times the Consumers' Rent derived from this sale: and is therefore the Compromise Benefit derived from that sale. The locus of P_6 is our sixth curve, QU, which we may call the COMPROMISE BENEFIT CURVE. It touches one of the Constant Revenue curves in u_6; which shows that the Compromise Benefit attains its maximum when amount OY is sold; or which is the same thing, when the selling price is fixed at the demand price for the amount OY.

General results.

The following general results are capable of exact proof; but on a little consideration they will appear so manifestly true as hardly to require proof. Firstly, the amount which the monopolist will offer for sale will be greater (and the price at which he will sell it will be less) if he is to any extent desirous to promote the interests of consumers than if his sole aim is to obtain the greatest possible Monopoly Revenue; and secondly, the amount produced will be greater (and the selling price will be less) the greater be the desire of the monopolist to promote the interests of consumers; i.e., the larger be the percentage of its actual value at which he counts in Consumers' Rent with his own revenue[1].

The importance of the interests of consumers has been under-estimated,

§ 8. Not many years ago there were many who contended that:—"An English ruler, who looks upon himself as the minister of the race he rules, is bound to take care that he impresses their energies in no work that is not worth the labour that is spent upon it, or—to translate the sentiment into plainer language—that he engages in nothing that will not produce an income sufficient to defray the interest on its cost[2]". Such phrases as this may sometimes have meant little more than that a benefit which consumers were not willing to purchase at a high price and on a large scale, was likely to exist for the greater part only in the specious counsels of those who had some personal interest in the proposed undertakings; but probably they more often indicated a tendency to under-estimate the magnitude of that interest which consumers have in a low price, and which we call Consumers' Rent[3].

[1] That is to say, firstly OY [(fig. 38)] is always greater than OL; and secondly, the greater n is, the greater OY is. (See Mathematical Note XXIII.)

[2] The words are quoted from a leading article in *The Times* for July 30, 1874: they fairly represent a great body of public opinion.

[3] Fig. (39) may be taken to represent the case of a proposed Government undertaking in India. The supply curve is above the demand curve during its whole length, showing that the enterprise to which it refers is unremunerative, in the sense that whatever price the producers fix, they will lose money; their Monopoly Revenue will be a negative quantity. But QT the Total Benefit curve rises above Ox; and touches a Constant Revenue curve in t_3. If then they offer for sale an amount OW, or, which is the same thing, fix the price at the demand price for OW, the resultant Consumers' Rent, if taken at its full value, will outweigh the loss on working by an amount represented by

because direct personal experience seldom helps much towards forming correct estimates of them,

One of the chief elements of success in private business is the faculty of weighing the advantages and disadvantages of any proposed course, and of assigning to them their true relative importance. He who by practice and genius has acquired the power of attributing to each factor its right quantity, is already well on the way to fortune; and the increase in the efficiency of our productive forces is in a great measure due to the large number of able minds who are devoting themselves ceaselessly to acquiring these business instincts. But unfortunately the advantages thus weighed against one another are nearly all regarded from one point of view, that

$OW \times Wt_5$. But suppose that, in order to make up the deficiency Government must levy taxes, and that taking account of all indirect expenses and other evils, these cost the public twice what they bring in to the Government, it will then be necessary to count two rupees of the Consumers' Rent as compensating for a Government outlay of only one rupee; and the net gain of the undertaking will then be represented by the Compromise Benefit curve QU, drawn midway between the Monopoly Revenue (negative) curve QQ' and the Total Benefit curve QT. This touches a Constant Revenue curve in u_6, showing that if the amount OY is offered for sale, or, which is the same thing, if the price is fixed at the demand price for OY, there will result a net gain to India represented by $OY \times Yu_6$.

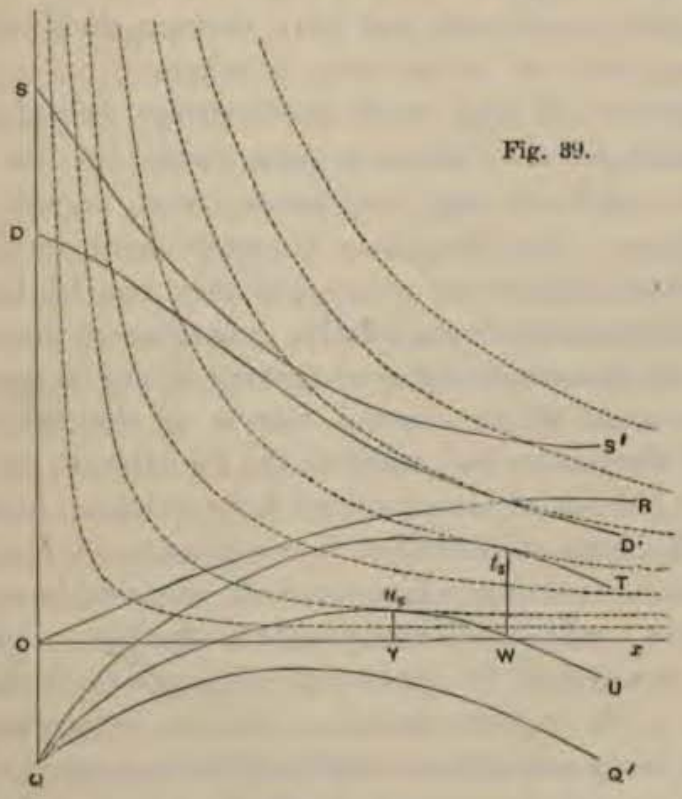


Fig. 89.

of the producer; and there are not many who concern themselves to weigh against one another the relative quantities of the interests which the consumers and the producers have in different courses of action. For indeed the requisite facts come within the direct experience of only a very few persons, and even in the case of those few, only to a very limited extent and in a very imperfect way. Moreover when a great administrator has acquired those instincts with regard to public interests which able business men have with regard to their own affairs, he is not very likely to be able to carry his plans with a free hand. At all events in a democratic country no great public undertaking is secure of being sustained on consistent lines of policy, unless its advantages can be made clear, not only to the few who have direct experience of high public affairs, but also to the many who have no such experience and have to form their judgment on the materials set before them by others.

and our public statistics are not yet properly organized.

Judgments of this kind must always be inferior to those which an able business man forms, by the aid of instincts based on long experience with regard to his own business. But they may be made much more trustworthy than they are at present, if they can be based on statistical measures of the relative quantities of the benefits and the injuries which different courses of public action are likely to cause to the several classes of the community. Much of the failure and much of the injustice, in which the economic policies of Governments have resulted, have been due to the want of statistical measurement. A few people who have been strongly interested on one side have raised their voices loudly, persistently and all together; while little has been heard from the great mass of people whose interests have lain in the opposite direction; for, even if their attention has been fairly called to the matter, few have cared to exert themselves much for a cause in which no one of them has more than a small stake. The few therefore get their way, although if statistical measures of the interests involved were available, it might prove that the aggregate of the interests of the few was only a tenth or a hundredth part of the aggregate of the interests of the silent many.

Statistical arguments are often misleading at first; but free discussion clears away statistical fallacies.

No doubt statistics can be easily misinterpreted; and are often very misleading when first applied to new problems. But many of the worst fallacies involved in the misapplications of statistics are definite and can be definitely exposed, till at last no one ventures to repeat them even when addressing an uninstructed audience: and on the whole arguments which can be reduced to statistical forms, though still in a backward condition, are making more sure and more rapid advances than any others towards obtaining the general acceptance of all who have studied the subjects to which they refer. The rapid growth of collective interests, and the growing tendency towards collective action in economic affairs, make it every day more important that we should know what quantitative measures of public interests are most needed and what statistics are required for them, and that we should set ourselves to obtain these statistics.

Hopes for the future from the statistical study of demand and Consumers' Rent.

It is perhaps not unreasonable to hope that as time goes on, the statistics of consumption will be so organized as to afford demand schedules sufficiently trustworthy, to show in diagrams that will appeal to the eye, the quantities of Consumers' Rent that will result from different courses of public and private action. By the study of these pictures the mind may be gradually trained to get juster notions of the relative magnitudes of the interests which the community has in various schemes of public and private enterprise; and sounder doctrines may replace those traditions of an earlier generation, which had perhaps a wholesome influence in their time, but which damped social enthusiasm by throwing suspicion on all projects for undertakings by the public on its own behalf which would not show a balance of direct pecuniary profit.

The practical bearings of many of the abstract reasonings in which we have recently been engaged will not be fully apparent till we approach the end of this treatise. But there seemed to be advantages in introducing them thus early, partly because of their close connection with the main theory of equilibrium of demand and supply, and partly because they throw side lights on the character and the

purposes of that investigation of the causes which determine Distribution and Exchange on which we are to enter as soon as we have carried a little further our analysis of Cost of Production.

CHAPTER IX.

SUMMARY OF THE GENERAL THEORY OF EQUILIBRIUM OF DEMAND AND SUPPLY.

Summary of Book v. Chapter I. On markets.

§ 1. In the present Book we have entered on the study of the mutual relations of demand and supply. We saw that the problem would present a great variety of forms, chiefly in consequence of variations in the area of Space, or the period of Time over which the Market in question extended; and as the difficulties connected with Space are less fundamental than those connected with Time, we addressed ourselves at once to the latter.

Chapter II. Temporary equilibrium of demand and supply.

We began with a market of very short period, such as that of a provincial corn exchange on market-day. Even in such a market as this the "higgling and bargaining" might probably oscillate about a mean position, which would have some sort of a right to be called the equilibrium price: but the action of dealers in offering one price or refusing another would depend little, if at all, on calculations with regard to cost of production. They would look chiefly at present demand on the one hand, and on the other at the stocks of the commodity already available. It is true that they would pay some attention to such movements of production in the near future as might throw their shadow before; but in the case of perishable goods, they would look only a very little way beyond the immediate present. Cost of production has for instance no perceptible influence on the day's bargaining in a fish market.

BOOK V. CH. IX.

These rapid fluctuations of market or current price, called for our attention chiefly in order that they might be clearly distinguished and set on one side as not bearing directly on the broad and fundamental relations of demand and supply which we were about to study. And yet it was important to notice that the incidents of market bargaining might exert a deep and lasting influence over the general course of economic development, if the advantages in bargaining were not equally divided in the long run between buyers and sellers. They are about equally divided in the chief markets for commodities; but in bargaining for the hire of some kinds of labour, the advantages are habitually on the side of the employer.

Chapters III. and IV. Equilibrium of normal demand and supply.

§ 2. In passing from these temporary equilibria to the stable equilibria of normal demand and normal supply we came upon a wholly different class of considerations: for here we found that the supply price was determined by Cost of production. We analysed therefore Cost of production so far as was absolutely necessary to show the general nature of its action, in conjunction with Demand, in determining price. But we went no further, and a great part of the analysis of Cost of production stands over for Book VI.; while the task of investigating the Distribution of wealth in its bearing on the normal supply prices of the various agents of production is left for Book VII.

The element of time.

We noticed that in the language both of professed writers on economics and of men of business, there was much elasticity in the use of the term normal when applied to the causes that determine value. Its uses are many and various, some being broad and some narrow; but there is one distinction which, though it has no sharp outlines, is yet fairly well marked. On the one side of this line of division are periods of time long enough to enable producers to adapt their production to changes in demand, in so far as that can be done with the existing provision of specialized skill, specialized capital, and industrial organization; but not long enough to enable them to make any important changes in the supplies of these factors of production. The supply price for such intermediate periods, the "subnormal" supply price as we

called it, is almost sure to rise with an increase of the commodity produced. On the other side of the line are longer periods, in which the normal action of economic forces has time to work itself out more fully; in which therefore a temporary scarcity of skilled labour, or of any other of the agents of production, can be remedied; and in which those economies that normally result from an increase in the scale of production—normally, that is without the aid of any substantive new invention—have time to develop themselves. We saw how this true normal supply price may rise or fall with an increase in the amount produced, or may remain approximately stationary, according as the commodity obeys the Law of Diminishing, Increasing or Constant Return.

In this connection we called to mind the discussions at the end of Book IV. of the difficulties which in practice prevent a single powerful firm from driving all rivals out of the field even in the production of a commodity which obeys the Law of Increasing Return. But we concluded that an increase in the aggregate normal production of such a commodity would lower its marginal supply price to some extent, though of course not to as great an extent as if all the production were in the hands of one firm, which had abundant capital, ability and energy, and offered the commodity at the lowest price which they could afford.

Normal demand and supply are in equilibrium when the *Equilibrium-amount* of the commodity is being produced; that is when the amount produced is such that its normal supply price is equal to its normal demand price; and this price is called the *Equilibrium-price*. When the equilibrium is stable, the price oscillates about its equilibrium level, with more or less regularity: this level is however not necessarily fixed; it may be slowly rising or falling, or perhaps even itself oscillating.

A position of equilibrium is stable, if for amounts just greater than the equilibrium amount the demand price is less than the supply price: otherwise it is unstable. Under certain possible, though rather improbable, conditions there may be two or more positions of equilibrium alternately stable and unstable. But this portion of the theory, though neces-

BOOK V. CH. IX.

sary for logical completeness, rests on rigid and artificial assumptions, and has but little practical importance.

Chapter VI. Joint and composite demand and supply.

§ 3. We next turned our attention to the *Joint demand* for commodities which are used in conjunction with others. The handle of a knife, for instance, which is of no use without its blade, must be regarded as having an indirect or *derived* demand price, which rises, other things being equal, with every increase in the demand for knives, and also with every decrease in the cost of production of blades. In like manner commodities of which there is a *joint supply*, such as gas and coke, or beef and hides, can each of them have only a *derived* supply price, governed by the expenses of the whole process of production on the one hand, and on the other by the demand for the remaining joint products.

Next we passed to the comparatively simple cases of the *composite demand* for a thing, resulting from its being used for several different purposes, and the *composite supply* of a thing that has several sources of production. The several amounts demanded for the different purposes, or supplied from different sources, can be added together on the same plan as was adopted in Book III. for combining the demands of the rich, the middle classes and the poor for the same commodity.

Ch. VII. Changes in normal demand and supply, with some reference to the doctrine of maximum satisfaction.

§ 4. We then turned to consider the effects of changes in the general conditions of demand and supply; changes which are due to some new event such as a substantive invention, or the imposition of a tax, or indeed any changes which for any reason we find it best to regard as lying outside, and altering the normal conditions of demand or supply.

After examining their immediate effects on normal value, we proceeded to inquire provisionally, and so far as might be done by reasoning of a general character, how the public well-being would be affected by such changes. And we concluded that, when proper allowance is made for the interests of consumers, in the form of Consumers' Surplus or Rent, there is less *primâ facie* cause than the earlier economists supposed, for the general doctrine, that the free pursuit by each individual of his own immediate interest, will

lead producers to turn their capital and labour, and consumers to turn their expenditure into such courses as are most conducive to the general interests; or in other words that the free play of demand and supply in an open market leads to the production of just that amount of each commodity and its sale at just that price which affords the *Maximum satisfaction* to the community as a whole.

We had nothing to do at that stage of our inquiry, limited as it was to analysis of the most general character, with the important question whether, human nature being constituted as it is at present, collective action is not likely to be much inferior to individualistic action in energy and elasticity, in inventiveness and directness of purpose; and whether it is not therefore likely to waste through practical inefficiency more than it could save by taking account of all the interests affected by any course of action. But we found that even without taking account of the evils arising from the unequal distribution of wealth, there is *primâ facie* reason for believing that the Aggregate Satisfaction, so far from being already a Maximum, could be much increased by collective action in promoting the production and consumption of things in regard to which the law of Increasing Return acts with especial force.

Ch. VIII. Theory of monopolies.

§ 5. This position was confirmed by the study of the theory of Monopolies, on which we next entered. We started from the obvious and universally admitted fact that the immediate interest of the monopolist is so to adjust the production and sale of his wares as to obtain for himself the Maximum Net revenue, and that the course which he thus adopts, is unlikely to be that which affords the Aggregate Maximum Satisfaction. We found that the divergence between individual and collective interests was *primâ facie* less important with regard to those things which obey the law of Diminishing Return, than with regard to those which obey the law of Increasing Return: but that, in the case of the latter, there was strong *primâ facie* reason for believing that it might often be to the interest of the community directly or indirectly to intervene, because a largely increased production would add much more to

Consumers' Rent than to the aggregate expenses of production of the goods. And lastly we concluded that more exact notions on the relations of demand and supply, particularly when expressed in the form of diagrams, would help us to see what statistics should be collected, and how they should be applied in the attempt to estimate the relative magnitudes of various conflicting economic interests, public and private.

BOOK VI.

COST OF PRODUCTION

FURTHER CONSIDERED.

CHAPTER I.

INTRODUCTORY.

The position from which we start.

§ 1. In the last Book we carried our analysis of Cost of production only so far as was strictly necessary for the purposes of the general theory of the equilibrium of demand and supply.

We saw that the term "Cost of production" is commonly used in two senses, in one of which it means certain efforts and sacrifices; in the other it means the supply prices or money measures of these efforts and sacrifices. We proposed to call the former the "Real Cost," the latter the "Money Cost," or more shortly the "Expenses," of production.

We have regarded the expenses of production of a thing as consisting of the supply prices of its several factors of production; and assumed provisionally that these can be analysed, and resolved, at all events theoretically, into earnings of work of many different kinds including that of business management, and the interest obtained by the postponement of present for the sake of future enjoyment. Rent and insurance against risk appear in the first instance as additional elements; but we are now going to inquire how far this is really the case.

We have to examine more closely the connection between the expenses of production of a commodity and those of the things used in making it; and here, as in the preceding Book, it will be the element of Time that will give us most trouble.

The argument of the present Book will be generally applicable to Personal as well as to Material Goods: but will be kept for the present in its most general form.

Nearly the whole of our inquiry will apply to markets for labour as well as to markets for commodities; to the supply price of skill as well as to the supply price of goods; to the investment of capital in education and industrial training as well as to its investment in the improvement of land or the making of machinery; to the income derived from that genius which is, so far as we know, the free and almost arbitrary gift of nature as well as to that derived from a vineyard of unique natural fertility. But the human elements of production have important incidents that are peculiar to themselves; and to introduce them here would add needless complexity to problems which are necessarily intricate. It will be best therefore to keep our argument for the present in its most general form; and to defer to the next Book our application of it to the price of human abilities; although much of its deepest interest lies in this application.

In that Book we are to study the causes by which earnings and interest are normally determined, and to bring together into one centre the main issues of the problem of Value, or in other words of Distribution and Exchange.

The argument of the next two chapters

We shall begin the present Book with the study of the supply price of things, the sources of supply of which are limited by nature, though not monopolized. Ricardo's famous doctrine that "Rent does not enter into (Money) Cost of production" will be found to be true only when the meaning of the terms used is very carefully limited, but when thus interpreted to have a very wide range of application. It will be found to apply with certain modifications not only to factors of production the supply of which is permanently limited, but also to those the supply of which cannot be increased quickly enough to affect appreciably the production of the commodity in question *during the period which we have in view when speaking of its normal supply price.* This discussion, which will occupy the next two chapters, is technical and difficult. But it has considerable interest from a theoretical point of view, and its bearing on practical problems is more important than at first sight appears.

is difficult and technical.

CHAPTER II.

COST OF PRODUCTION. LIMITED SOURCES OF SUPPLY.

Three preliminary cautions.

§ 1. IT will be well at starting to guard against some common errors as to the meaning of Ricardo's doctrine that Rent does not enter into Cost of production.

In the first place, he did not intend to limit it to cases in which land is cultivated by a tenant who pays rent for it to some one else. Rent is here taken as another name for the *Surplus produce* which is in excess of what is required to remunerate the cultivator for his capital and labour; and if the cultivator owns the land himself, he of course retains this surplus[1].

Next, it may perhaps not be superfluous to repeat that the "Marginal" dose, by the return to which we estimate the amount required to remunerate the farmer, is not necessarily applied to land on the margin of cultivation: it is on the *margin of profitable expenditure* on land of any quality.

Lastly, the doctrine does not mean that a tenant farmer need not take his rent into account when making up his year's balance-sheet: when he is doing that, he must count his rent just in the same way as he does any other expense. What it does mean is that when the farmer is calculating whether it is worth his while to apply a certain extra dose of capital to the land, *then* he need not think of his rent; for he will have to pay this same rent whether he applies this extra "Marginal" capital or not: and therefore if the "Marginal" produce

[1] See above, Book IV. Ch. III. § 2.

due to this dose seems likely to give him normal profits, he applies the dose; and his rent does not *then* enter into his calculations.

Provisional statement of Ricardo's meaning.

Thus Ricardo's contention was that the price of the whole produce was determined by the action of the farmers with regard to their "Marginal" produce; and that since this action was not affected by the rent they had to pay, therefore rent did not enter into the price of the marginal produce and therefore did not enter into the price of any part. On the other hand, he continued, this price does play an important part in determining rent. On a closer study this doctrine will be found to be a special case of a very broad scientific principle towards which Ricardo was more or less consciously working his way[1].

Neglecting for the present farm rents and the income derived from mines, let us take our first illustration from mineral springs,

§ 2. In examining the relation which the rent of a natural agent bears to the value of the products that are obtained by its aid, it will be well to avoid, in the first instance, the case of farmer's rent; for that case is encumbered by many misleading associations arising from the complex incidents of land tenure. Again the case of mines must be avoided; because, as we have already noticed[2], a mine is to be regarded as a store that is being emptied rather than as the source of a steady income. Let us then take an illustration from the case of a perennial spring of natural mineral water.

We may pass by the case in which all the springs of the same kind, if there are more than one, are in the hands of the same owner. For that would be a case of pure monopoly, which we have already discussed: the rent with which

[1] Adam Smith is attacked by Ricardo for putting rent on the same footing with wages and profits as parts of (money) cost of production; and no doubt he does this sometimes. But yet he says elsewhere, "Rent it is to be observed enters into the composition of the price of commodities in a different way from wages and profit. High or low wages and profit are the causes of high or low price: high or low rent is the effect of it. It is because high or low wages and profit must be paid in order to bring a particular commodity to market that its price is high or low. But it is because its price is high or low a great deal more, or very little more, or no more than what is sufficient to pay those wages and profits, that it affords a high rent, or a low rent, or no rent at all." (*Wealth of Nations*, Book I. Chapter XI.) In this as in many other instances he anticipated in one part of his writings truths which in other parts he has seemed to deny. We shall recur to his and Ricardo's doctrines as to the rent of mines later on.

[2] Book IV. Ch. III. § 7.

we are here concerned is the income derived from one of several sources of supply of the same commodity, these sources being in the hands of persons who are competing with one another[1].

which are not a monopoly, but are limited in number.

Suppose then that there are in a certain place a number of springs, not all owned by the same person, of a natural mineral water for which there is no available substitute. Suppose also that the supply drawn from each of them can be increased almost indefinitely by the aid of pumping appliances, the expensiveness of which increases more than in proportion to the additional supplies obtained by their means. Then, it being assumed that there is no combination between the owners of the springs, each will go on increasing his production until the price no longer does more than cover the expenses of an additional supply. The equilibrium price will be such as just to remunerate each producer for his marginal production; that is, for the last gallon of water which his expenditure enables him to raise, when the amounts raised from the several springs are such that they are together equal to the amount which purchasers are willing to buy at that price. The rental value of each spring will be the excess which this price affords over the expenses of working it. Thus the price will be determined by the relations of demand and supply; it will take part directly in determining the rent and will not be determined by the rent: rent will not enter into expenses of production[2].

[1] We have seen (Book v. Ch. VIII.) that the rental of a single spring would be determined by the "Maximum Monopoly Profit" which it could afford. The lessee would fix the price of the water so that the aggregate (yearly) receipts from the sales would exceed the aggregate (yearly) expenses of working the business by as large a sum as possible: and this excess (his own earnings of management being included in the expenses of working) would be the rent which the owner of the spring could compel him to pay. The fact that these monopoly profits would be determined, other things being equal, by the price of the water, and would not enter directly into that price, is in harmony with the doctrine we are discussing, but is not an illustration of it.

[2] The plan of starting with value as determined by a monopoly, and then introducing the competition of many rivals so as to work towards the circumstances of a free market was adopted by Cournot as the basis of his mathematical treatment of economics. His work is most fascinating and suggestive: but he seems not to have noticed that if the field of sale of each of the rivals were unlimited, and the commodity which they produced obeyed the law of Increasing Return then the

A latent assumption must be drawn to the light.

§ 3. So far then Ricardo's doctrine might appear to be true unconditionally: but in fact we have silently introduced the conditions by which it has to be limited. For we have implicitly assumed that every spring will be opened up which can be worked so as to supply water at an expense less than the selling price, nothing being allowed in estimating this expense for the value of the land. That is, we have assumed that there is no other way of using the land from which a larger revenue can be derived. But if one of the smaller springs happened to be so situated that it could not be worked without injury to a valuable site, it would probably not be worked at all; the fact that the site had a high rental value for other purposes would cut off part of the supply of mineral water that otherwise would have been forthcoming. This would cause more water to be obtained from the other springs at expenses increased more than in proportion: the expenses of production of that part which determines the price of the whole would be raised in consequence of the high rent that could be got by using for other purposes one of the sites on which machinery for pumping mineral water might have been erected. Thus the proposition that rent does not enter into expenses of production is true in its unqualified form only on the assumption that none of the possible sources of supply of the commodity in question have been diverted to purposes that will enable them to render a higher rent.

It may fairly be made with regard to agricultural produce as a whole.

Such an assumption is generally justifiable with regard to springs of mineral water, and again with regard to agricultural produce taken as a whole; and it was really, though perhaps unconsciously, made by Ricardo, when he contended that the rent of agricultural land does not enter into the price of corn. He supposed that all kinds of agricultural produce can be regarded as converted into certain quantities of corn; and then took it for granted that all the land will be used for agricultural purposes of some kind or other, with the exception of building sites, which are a small

position of equilibrium attained when each produced on the same scale would be unstable. For if any one of the rivals got an advantage, and increased his scale of production, he would thereby gain a further advantage, and soon drive all his rivals out of the field. Cournot's argument does not introduce the limitations necessary to prevent this result.

and nearly fixed part of the whole. On the understanding that this assumption is made, his doctrine is valid; it is then true that the price of agricultural produce taken as a whole is governed, in the long run, and other things being equal, by its marginal expenses of production (or, to use the ordinary metaphor, by the expenses on the margin of cultivation); that these expenses are not in any way affected, directly or indirectly, by the rent paid for the land; and that therefore rent does not enter into the expenses of production of agricultural produce taken as a whole.

But when the doctrine is applied to any one kind of produce taken separately it is misleading.

§ 4. But when applied to the case of one kind of agricultural produce considered separately, the doctrine is not true as it stands. In order to make it true we must add conditions, the effect of which is almost to explain it away. For instance the production of those oats which only just pay their way is often said to determine the price of all other oats; rent, it is argued, does not enter into their cost of production, and therefore rent does not enter into the supply price of oats. But this is not strictly true.

It is true that when we know what are the most unfavourable conditions under which oats are grown, we can calculate the supply price of oats by reckoning up their expenses of production; just as we can discover the temperature by looking at the thermometer. But as it would be misleading to say that the height of the thermometer determines the temperature; so a great deal of confusion has arisen from saying simply that the normal value of oats is determined by their production under the most unfavourable circumstances under which they are grown. This statement needs to be completed by adding that these circumstances are, no less than the normal value itself, determined by the general conditions of demand and supply; and that one of the chief of these conditions is the amount of land capable of growing oats which affords a higher rent when used for other purposes than when used for growing oats. For the expenses of production of those oats which only just pay their way, are greater than they would be, were it not that much of the land which would return the largest crops of oats to the smallest outlay is diverted to growing other crops that will enable it

to pay a higher rent than oats would afford; and therefore the rent that land on which oats could be grown, can be made to pay for other purposes, does indirectly affect the expenses of production and the normal value of oats[1].

Those limitations and conditions which are necessary to make the doctrine true of agricultural rents are sufficient to make it true of urban rents.

§ 5. The doctrine that rent does not enter into money-cost of production applies then to agriculture only when carefully limited; and if Ricardo had studied its limitations more carefully he would probably have seen that there remained no reason for confining its scope to agriculture. Taken in the natural sense of the words, it is not true of agricultural rent; taken with proper limitations it is equally true of all kinds of rent.

We have seen[2] that the Law of Diminishing Return applies to the use of land for the purposes of living and working on it in all trades. Of course in the trade of building, as in agriculture, it is possible to apply capital too thinly. Just as a squatter may find that he can raise more produce by cultivating only a half of the 160 acres allotted to him than by spreading his labour over the whole, so even when ground has scarcely any value, a very low house may be dear in proportion to its accommodation. But as in agriculture there is a certain application of capital and labour to the acre which gives the highest return, and further applications after this give a less return, so it is in building. The amount of capital per acre which gives the maximum return varies in agriculture with the nature of the crops, with the state of the arts of production, and with the character of the markets to be supplied. Similarly in building, the capital per square foot which would give the maximum return, if the site had no scarcity value, varies with the purpose for which the building is wanted. But when the site has a scarcity value, it is worth while to go on applying capital beyond this maximum rather than pay the extra ground-rent required for extending the site. In places where ground-rent is high, each square foot

[1] As Mill points out when discussing "some peculiar cases of value," all questions relating to the competition of crops for the possession of particular soils are complicated by the rotation of crops and similar causes (*Principles*, Book III. Ch. XVI. § 2). He does not however appear to have noticed the bearing of these remarks on the general problem of "Rent in its relation to Value."

[2] Book IV. Ch. III.

is made to yield perhaps twice the accommodation, at more than twice the cost, that it would be made to give if used for similar purposes where ground-rent is low. We may apply the phrase *the Margin of Building* to that accommodation which it would not be worth while to obtain from a given site if its ground-rent were a little lower; and, to fix the ideas, we may suppose this accommodation to be given by the top floor of the building[1].

The Margin of Building.

By erecting this floor, instead of spreading the building over more ground, a saving of ground-rent is effected, which just compensates for the extra expense and inconvenience of the plan. The accommodation given by this floor, when allowance has been made for its incidental disadvantages, is only just enough to be worth what it costs without allowing anything for ground-rent; and the expenses of production of the things raised on this floor, if it is part of a factory, are just covered by their price; there is no surplus for ground-rent. The expenses of production of manufactures may then be reckoned as those of the goods which are made on the margin of building, so as to pay no ground-rent. On the understanding that we do so reckon them, it is true that ground-rent does not enter into the expenses of manufacture; and this understanding is exactly parallel to that which has to be supplied in order to make Ricardo's doctrine true, when applied to agriculture. For, the expenses of production of oats are increased by the fact that land which could yield good crops of oats is used to grow other crops yielding a higher rent, while the printing presses which may be seen at work in London some sixty feet above the ground could afford to do their work a little cheaper if the pressure of

[1] Houses built in flats are often provided with a lift which is run at the expense of the owner of the house, and in such cases, at all events in America, his top floor sometimes lets for a higher rent than any other. If the site is very valuable and the law does not limit the height of his house in the interest of his neighbours, he may build very high: but at last he will reach the margin of building. At last he will find that the extra expenses for foundations and thick walls, and for his lift, together with some resulting depreciation of the lower floors, makes him stand to lose more than he gains by adding one more floor; the extra accommodation which it only just answers his purpose to supply is then to be regarded as at the margin of building, even though the gross rent be greater for the higher floors than for the lower.

ground-rent did not push the margin of building up so high[1].

The indirect effect of rent on Expenses of production must not be overlooked either in manufacture or in agriculture.

Reverting to a caution given at the beginning of this chapter against misunderstanding the general bearing of Ricardo's doctrine, we may notice that this argument does not imply that a manufacturer when making up the profit and loss account of his business would not count his rent among his expenses. If the ground-rent in, say, Leeds rises, a manufacturer finding his expenses of production increased may move to another town or into the country; and leave the land on which he used to work to be built over with shops and warehouses, for which a town situation is more valuable than it is for factories[2]. For he may think that the saving in ground-rent that he will make by moving into the country, together with other advantages of the change, will more than counterbalance its disadvantages. In a discussion as to whether it was worth his while to do so, the ground-rent of his factory would be reckoned among the expenses of production of his cloth.

[1] Jevons in the Preface to the Second Edition of his *Theory of Political Economy* argues in the direction of treating agricultural rent on the same footing as ground-rent. But he goes on:—"If land which has been yielding £2 per acre rent, as pasture, be ploughed up and used for raising wheat, must not the £2 per acre be debited against the expenses of production of wheat?" It is true that Mill was inconsistent in answering this question in the negative, while he maintained that when land capable of yielding rent in agriculture is applied to some other purpose, the rent which it would have yielded is an element in the cost of production of the commodity which it is employed to produce. But still the proper answer to Jevons' question is in the negative. For there is no connection between this particular sum of £2 and the expenses of production of that wheat which only just pays its way. The amount of capital applied in cultivation is elastic, and is stretched until the return to it only just repays the outlay: this limit is determined by the general circumstances of supply and demand; and is independent of the particular sum of £2 which the land will afford as rent. Mill ought to have said, "When land capable of being used for producing one commodity (whether agricultural produce or not) is used for producing another, the price of the first is raised by the consequent limitation of its field of production. The price of the second will be the expenses of production (wages and profits) of that part of it which only just pays its way, that which is produced on the margin of building. And if for the purposes of any particular argument we take together the whole expenses of the production on that site, and divide these among the whole of the commodity produced, then, the rent which we ought to count in is not that which the site would pay if used for producing the first commodity, but that which it does pay when used for producing the second."

[2] Compare the latter part of Book IV. Ch. III. § 7.

This is true. But it is no less true that in making up the profit and loss account of the cultivation of land, the farmer's rent must be reckoned among his expenses. A hop-grower, for instance, may find that on account of the high rent which he pays for his land, the price of his hops will not cover their expenses of production where he is, and he may abandon hop-growing, or seek other land for it; while the land that he leaves may perhaps be let to a market-gardener. After a while again the demand for land in the neighbourhood may become so great that the price which the market-gardener obtains for his produce will not pay its expenses of production, including rent; and so he in his turn makes room for, say, a building company.

Mining Royalties enter into the cost of production of minerals.

§ 6. Mines, quarries, &c. form a class by themselves, as has already been indicated[1]. For, except when they are practically inexhaustible, the excess of their income over their direct outgoings has to be regarded, in part at least, as the price got by the sale of stored up goods—stored up by Nature indeed, but now treated as private property; and therefore the marginal supply price of minerals includes a royalty in addition to the marginal expenses of working the mine. This royalty on a ton of coal, when accurately adjusted, represents that diminution in the value of the mine, regarded as a source of wealth in the future, which is caused by taking the ton out of nature's storehouse. Ricardo was technically right when he said that rent does not enter into the marginal expenses of production of mineral produce. But he ought to have added that the incomes derived from mines, which are not practically inexhaustible, are in fact partly rent and partly royalty; and that though the rent does not, the minimum royalty does enter into these marginal expenses[2].

[1] Book IV. Ch. III. § 7.

[2] Compare Prof. Sorley's paper on *Mining Royalties* in the *Statistical Journal* for March 1889.

CHAPTER III.

COST OF PRODUCTION. LIMITED SOURCES OF SUPPLY CONTINUED.

The question whether the income derived from a factor of production is to be regarded as due to a differential advantage, and therefore as partaking of the nature of rent,

§ 1. So far we have supposed that a clear distinction can be drawn between Rent and Profits[1]. But this cannot always be done; and indeed there is some difficulty in ascertaining the general principles on which the distinction should be based. In the first place, much of what is commonly called the rent of land is properly to be regarded, for some purposes at least, as the profits of capital expended in improving it. And in the second place, as has been observed by a long series of writers, among whom Senior and Mill, Hermann and Mangoldt are conspicuous, much of what is commonly called profits ought rather to be regarded as belonging to a special class of incomes derived from "a differential advantage in producing a commodity;" that is, the possession by one or more persons of facilities for production that are not accessible to all. Since the leading and representative member of this class is the rent of land, the name of Rent is sometimes applied to the whole class: though this course is not without danger[2].

[1] Rent is compared with profits rather than with interest, because it commonly includes an element of earnings of management and undertaking: but this is a question of degree; and there are a few exceptional cases in which a net rent emerges that may more fitly be compared with interest. This point will require further discussion at a later stage.

[2] Within the last few years this subject has been pursued with great zeal and ability in Austria and America: see for instance Prof. Boehm-Bawerk's *Kapitalzins-Theorien*, Prof. Wieser's *Natürliche Werth*, General Walker's various writings, Prof. Clark's *Capital and its Earnings*, and Prof. Patten's *Stability of Prices*.

As Mill says, "Any difference in favour of certain producers or in favour of production in certain circumstances is the source of a gain, which though not called rent unless paid periodically by one person to another is governed by laws entirely the same with it. The price paid for a differential advantage in producing a commodity cannot enter into the cost of production of the commodity[1]."

depends not so much on the nature of that factor as on the length of the period for which its influence on production is being estimated.

But there is yet a difficulty in ascertaining what kinds of advantage are to be regarded as differential. We shall find reason for thinking that in many cases at least the distinction between those advantages which are, and those which are not to be thus regarded, is not absolute, but depends upon the element of Time. It will appear that many advantages which are to be regarded as differential, and as affording a Quasi-rent, when we are considering the action of economic causes during short periods of time, are to be regarded as not differential, and as yielding profits, when we are studying the broader effects of economic causes through longer periods[2]. Or to put the case more exactly:—

If the supply of any factor of production is limited, and incapable of much increase by man's effort in any given period of time, then the income to be derived from it is to be regarded as of the nature of rent rather than profits in inquiries as to the action of economic causes during that period; although for longer periods it may rightly be regarded as profits which are required to cover part of the expenses of production and which therefore directly enter into those expenses.

Now the "inherent properties" of land, and other gifts from the bounty of Nature, are incapable of increase by man's effort in any period of time however long; and they may be regarded as the typical instance of this

[1] *Political Economy*, Book III. Ch. v. § 4.

[2] Senior seems to have had his attention turned somewhat in this direction when he said that "for all useful purposes the distinction of profits from rent ceases as soon as the capital from which a given revenue arises has become, whether by gift or by inheritance, the property of a person to whose abstinence and exertions it did not owe its creation." (*Political Economy*, p. 129.)

class[1]. But the original gifts of Nature afford no rent when their supply is unlimited[2]; and the relation in which the income derived from land stands to that derived from machinery and other kinds of fixed capital will be made clearer if we follow the former through its successive stages.

When a new country is first settled land is to be regarded as yielding profits rather than rent.

§ 2. A settler who takes up land in a new country exercises no exclusive privilege, for he only does what any one else is at liberty to do. He undergoes many hardships, if not personal dangers, and perhaps runs some risk that the land may turn out badly, and that he may have to abandon his improvements. On the other hand, his venture may turn out well; the flow of population may trend his way, and the value of his land may soon give as large a surplus over the normal remuneration of his outlay on it as the fishermen's haul does when they come home with their boat full. But in this there is nothing which presents itself to him as rent. He has engaged in a risky business which was open to all, and his energy and good fortune have given him an exceptionally high reward: others might have taken the same chance as he did; and from a business point of view they ought to have done so, if they thought that, after discounting all the hardships and risks of the venture, it would yield a surplus which could fairly be called the rent of a special privilege or monopoly.

Thus the income which he expects the land to afford in the future enters into the calculations of the settler, and adds to the motives which determine his action when on the margin of doubt as to how far to carry his enterprise. He regards its "discounted value"[3] as profits on his capital, and as earnings of his own labour, in so far as his improvements are made with his own hands.

A settler often takes up land with the expectation that

[1] Compare Book IV. Ch. II. § 1.

[2] This phrase is in common use, and is sufficiently intelligible: but it is not strictly accurate. What we mean is that the amount of them freely available is at all events greater than the amount which the people at the place and time in question care to have even when they can get them freely. (In other words it is greater than the amount represented by the distance from O of the point in which the demand curve cuts Ox.)

[3] Compare Book III. Ch. II. § 3.

the produce which it affords while in his possession will fall short of an adequate reward for his hardships, his labour and his expenditure. He looks for part of his reward to the value of the land itself, which he proposes after a while to sell to some new-comer who has no turn for the life of a pioneer. Sometimes even, as the British farmer learns to his cost, the new settler regards his wheat almost as a bye-product; the main product for which he works is a farm, the title-deeds to which he will earn by improving the land, and the value of which will steadily rise[1].

When there are no more title-deeds to be earned in equally favoured situations, rent emerges,

§ 3. But when the land is all taken up, the desire to obtain its title-deeds no longer acts as a motive to further improvement and to further production. Henceforth that net income which the land affords to its owner in excess of normal profits on his fresh application of capital is a Producer's Surplus standing outside of those gains which are required to cover the marginal expenses of production. As population and wealth increase in the neighbourhood this net income also will increase; but except in so far as the improvement may be due to the direct action of individual owners, the whole of it may be regarded as a rent coming under the general argument of the preceding chapter.

Its amount therefore will be determined, other things

[1] It has even been maintained that any new country which should refuse to settlers the power of acquiring an absolute right of property in the soil, and should grant long leases only, would see the stream of immigrants into it speedily run away. But there does not seem to be any strong reason for thinking that this effect would be more than temporary: for the more far-seeing class of immigrants might think that what was kept from them as "individual wealth" was more than returned to them as shareholders in the "collective wealth." And even if not, it may be doubtful whether the few people who first arrive on a new shore are justified in assuming that they have the right to dispose of its vast resources in perpetuity. Warned by the experiences of the past our own generation might well pause before entering into new engagements that purport to bind its successors for all time. The gain which the world as a whole can get from turning the stream of migration in this direction rather than that, is not very great; and distant generations may think that the fee simple of the soil was too high a price to pay for such a purpose; and that, since a hundred years, though nothing in the life of the race, is long relatively to individual lives, a free lease for a hundred years would have been a sufficient price to pay. But this takes us out beyond the range of our present inquiries: the point with which we are concerned just here is that anything that affects the hopes of distant gain on the part of the settler exerts a clearly marked, though perhaps slowly acting influence on the amount of produce which will be forthcoming in the country at any given time.

and the shorter the period under consideration, the wider are the classes of improvements, the income of which is classed as rent.

being equal, by the supply price of produce at the margin of cultivation and it will play very little direct part in determining that price. For that price will be governed chiefly by the results which landowners and farmers can get from applying capital and labour in the further development of the resources of the soil, and in cultivating it by more intensive methods than those of the early settler. The results of all kinds of improvements, both those which bear fruit slowly and those which bear fruit quickly, will be watched; and their success or failure will influence those who are thinking of investing more capital in the soil. Local variations of land tenure and custom will affect the issue; but in every case it will be true that the marginal supply price of produce in the near future will not be affected by improvements that bear fruit slowly in the same way that it is by those which act quickly.

An illustrative instance.

Suppose, for instance, that a war, which was not expected to last long, were to cut off part of our food supplies. People would set themselves to raise heavier crops by such extra application of capital or labour as was likely to yield a speedy return; they would consider the results of artificial manures, of the use of clod-crushing machines, and so on; and the more favourable these results were, the lower would be the price of produce in the coming year which they regarded as necessary to make it worth their while to incur additional outlay in these directions. But the war would have very little effect on their action as to improvements that would not bear fruit till it was over.

In an inquiry then as to the causes that will determine the prices of corn during a short period, that fertility which the soil derives from slowly made improvements has to be taken for granted as it then exists, almost in the same way as if it had been made by nature; and the income derived from it may be regarded as a Quasi-rent. But it is more properly regarded as profits than as rent when we are considering the broader action of economic causes over long periods of time—that action which controls the gradual development of material well being. For in the long run the net returns to the investment of capital in the land,

taking successful and unsuccessful returns together, do not afford more than an adequate motive to such investment. If poorer returns had been expected than those on which people actually based their calculations, fewer improvements would have been made; and in any case the improvements would depend partly on the conditions of land tenure, and the enterprise and ability and command over capital on the part of landlords and tenants which existed at the time and place in question.

Allowance has to be made in its proper place for the influence of different forms of land tenure.

§ 4. But this last clause requires some attention. Although we are treating the incomes derived from land as a special instance of the incomes derived from the possession of "any differential advantage in producing a commodity"; and although we are setting aside those aspects of the problem which are peculiar to agricultural land, and especially those which depend upon particular forms of land tenure; yet, there have been so many misunderstandings on the subject, that it will be best to say something at once on the difference between the mode of action of competition in agriculture and in manufacture.

If one manufacturer is unenterprising, others may be able to step into the opening which he leaves vacant: but when one landowner does not develop the resources of his land in the best way, others cannot make up for the deficiency without calling into play the Law of Diminishing Return; so that his want of wisdom and enterprise makes the marginal supply price a little higher than it otherwise would be. It is true that the difference between the two cases is only one of degree; since the growth of any branch of manufactures may be retarded perceptibly by any falling off in the ability and enterprise of the leading firms engaged in it.

But still it is practically an important difference, whatever be the forms of land tenure and the habits of the agricultural classes: and it rises to the first order of importance where the laws and customs of the country are such that those who own the land take no part in its improvement, and those who cultivate it have no security of reaping a fair share of the fruits of any improvements made by them.

The difference is reduced to a minimum in some parts of America where the land is owned by enterprising and well-to-do "farmers"; and in some parts of England where landlords take a pride in the good condition of their property and those who till it, and are always on the look-out for opportunities of using their capital to aid their tenants in improving the land on terms advantageous to both sides. In such districts any new opening in which capital can get ever so little more than normal profits, allowance being of course made for risks, is almost as sure to be seized on quickly in agriculture as in manufacture.

The results reached with these conditions

We must then always bear in mind that there are large allowances to be made for the special conditions of land tenure in different places. But on the whole we may conclude that, when the enterprise of landowners is most active, the extra income derived from improvements that have been made in the land by its individual owner—this income being so reckoned as not to include any benefit which would have been conferred on the land by the general progress of society independently of his efforts and sacrifices—does not as a rule give a surplus beyond what is required to remunerate him for those efforts and sacrifices. He may have underestimated the gains which will result from them; but he is about equally likely to have made an overestimate. If he has estimated them rightly, his interest would have lead him to make the investment as soon as it showed signs of being profitable: and in the absence of any special reason to the contrary we may suppose him to have done this.

for long periods

On these suppositions then, when we are considering periods which are long in comparison with the time required to make, and bring into full operation, improvements of any kind, the net incomes derived from them are to be regarded as the price required to be paid for the efforts and sacrifices of those who make them. The expenses of making them thus directly enter into marginal expenses of production,

and for short

and directly govern long-period supply price. But in short periods, that is in periods short relatively to the time required to make and bring into full bearing improvements of the class in question, the incomes derived from them exercise

no such direct influence on supply price; and when we are dealing with such periods these incomes may be regarded as a Quasi-rent which takes little direct part in determining, but is rather dependent on the price of the produce. (It may be noted, however, that Rent proper is estimated on the understanding that the original properties of the soil are unimpaired. And when the income derived from improvements is regarded as a Quasi-rent, it is to be understood that they are kept up in full efficiency: if they are being deteriorated, the equivalent of the injury done to them must be deducted from the income they are made to yield before we can arrive at that *Net* income which is to be regarded as their Quasi-rent.)

are applicable to all branches of industry;

These results do not depend upon the special qualities of land, or on the special conditions of agriculture; they are generally applicable to all branches of industry. This is perhaps already obvious enough: but as the subject is one of much difficulty, it may be well to take an illustration of the bearing of our results upon manufacturing industries.

as is further shown by an illustration relating to manufacture.

§ 5. Let us suppose that an exceptional demand for a certain kind of textile fabrics is caused by, say, a sudden movement of the fashions. The special machinery required for making that fabric will yield for the time an income, which bears no direct relation to the expenses of making the machinery; but is rather a high Quasi-rent governed by the price that can be got for the produce, and consisting of the excess of the aggregate price of that produce over the direct outlay (including wear and tear) incurred in its production.

Next suppose that the tide has turned, and that the demand for a certain class of goods is much less than had been expected. The factories with the most imperfect appliances, and the worst machinery in other factories will be thrown out of work: those machines which it is just worth while to keep in work, will just pay the actual expenses of working them, but will yield no surplus. Their produce will be on the margin of production; and the excess of the price got for the goods made by the better appliances over wear and tear, together with the actual expenses of working them, will be the surplus or Quasi-rent which these appliances yield

during the short period of depression. In this case the Quasi-rent will be not more but less than normal profits on the original investment.

The Quasi-rent of old-fashioned machinery.

Next, seeking another aspect of the same truth, let us take the case of a branch of manufacture for the products of which there is a uniform and steady demand; and let us suppose that the machinery required for it is suddenly improved. For a time those who use the new machinery will get exceptionally high profits: but before long its use will have become general and will control the price of the produce. That will in future be equal to the normal expenses of production of those portions of the produce which are made with new machinery, interest being reckoned on the expenses of producing this machinery, together with wear and tear, and "depreciation" at a high rate to allow for the chance that it will in its turn become obsolete. Meanwhile such of the old machinery as is in good repair may perhaps be kept at work; but the income which it earns will bear no direct relation to its own expenses of production; it will be the small excess of the selling value of the produce made by it, over the wear and tear and other direct outlay involved; this income will be a Quasi-rent, the value of which will be determined by the price of the produce, and play no direct part in determining that price.

But it may be noted that the produce made by machinery which is so far obsolete that its owner is in doubt whether to use it at all or to throw it away, gives the means of ascertaining the normal price, equally with that produce which is made under normal conditions by new machinery: save only that in the one case the expenses of production of the machinery do not enter into the account at all, and in the other a full charge is made for them.

The analogy between Quasi-rent and rent relates only to short periods, and has no bearing on

§ 6. Similar illustrations might be taken from any other branch of business. Each branch has special features of its own; but with proper modifications in detail, the same general principle applies to all. In every case the Net income derived from the investment of capital, when once that investment has been made, is a Quasi-rent. That is to say, when the causes which determine short-period fluctuations

of production are under discussion, this Quasi-rent may be classed with rent proper, on the ground that it stands outside of the payments which influence producers to take such action as would increase the available supply within a short period. But this resemblance to rent is only partial and in a sense superficial.

the broader problems of economic progress.

For when land or other free gifts of nature have once become private property, their rent proper does not act as a direct motive to make and save the means of production: though of course a violent appropriation of it might destroy that security on which all such motives depend. It is a true surplus. But the Quasi-rent of capital is, speaking generally, no true surplus. If it had been expected to be less than it actually is, the motives to work and to save the product of work would have been less. And if this Quasi-rent were to be diminished now, in such a way as to diminish the expectations of the future gain likely to result from the effort and sacrifice involved in working and saving the product of work, the growth of individual capital would at once be checked. The existing plant might indeed be sufficient to prevent the change from considerably affecting the supply of finished commodities, or goods of the First Order, for a few years: but the broad course of economic development would be changed; and, so far as it depends on the supply of individual capital, it would be arrested.

It is true that what was lost in this direction might be counterbalanced by a corresponding growth of collective capital. Whether there would be any considerable chance of this, is a matter on which opinions differ. But when we come to discuss the schemes of modern socialists it will be important to remember that, though there is some real analogy between the Quasi-rent of capital and rent proper, yet the analogy does not reach far. It has no validity at all except when short periods only are under discussion: it has no bearing on those broad and slow movements on which the general progress and the ultimate well-being of mankind depend.

Summary of the

§ 7. Thus then, after considering in the last Chapter Ricardo's doctrine as to the relation in which rent proper

relations between Rent and Quasi-rent.

stands to value, we have now extended that doctrine to the income which man derives from those appliances for production with which he has provided himself, and especially such of them as are durable, and are but slowly made, and the supply of which therefore cannot be rapidly increased. We have found that the part which they play in determining normal value, varies with the length of the period which is allowed for their action. When we are taking a broad view of normal value extending over a very long period of time, when we are investigating the causes which determine normal value "in the long run," when we are tracing the "ultimate" effects of economic causes, then the income that is derived from capital in these forms enters into the payments by which the expenses of production of the commodity in question have to be covered, and it directly controls the action of the producers who are on the margin of doubt as to whether to increase the means of production or not. But, on the other hand, when we are considering the causes which determine normal prices for a period which is short relatively to that required for largely increasing the supply of those appliances for production, then their influence on value is chiefly indirect and more or less similar to that exerted by the free gifts of nature. The shorter the period which we are considering, and the slower the process of production of those appliances, the less part will variations in the income derived from them play in checking or increasing the supply of the commodity produced by them, and in raising or lowering its supply price; and the more nearly true will it be that, for the period under discussion, the Net income to be derived from them is to be regarded as a Producer's Surplus or Quasi-rent.

In passing from the free gifts of nature through the more permanent improvements in the soil, to less permanent improvements, to farm and factory buildings, to steam-engines, &c., and finally to the less durable and less slowly made implements, we find a continuous series. And parallel to this series of the material agents of production there is a similar series of human abilities; those that are the free gifts of nature, and those that are the result of a more or less

long and specialized process of training. Later on we shall find that many of the most interesting applications of the principle which we have just discussed are to human agents of production; but in the present Book we are confining our attention to the material agents of production.

The supply of goods of the Second and higher Orders is governed by estimates that range over long periods and are liable to error.

We have seen that in the adaptation of demand to supply for short periods, producers have to consider what use to make of their existing appliances for production; but that the long-period supply price of a finished commodity, or a good of the First Order, is governed by the calculations of producers as to how far it is worth their while to increase their stock of appliances for making it. Thus the supply of factors of production, or goods of the Second Order, is governed by estimates that reach forward over a longer time, and are therefore more liable to error than those which govern the immediate adaptation of supply to demand with regard to goods of the First Order.

But further the supply of these goods of the Second Order depends partly on the supply of appliances for making them, that is, of things removed by two Orders from the commodity with which we started: and the adjustment of the supply of these goods of the Third Order to the indirect demand for them, which is derived ultimately from the demand for the finished commodity, is a still more difficult process; it ranges over a still longer period of time, and is still more liable to error: and so on, backwards, without limit. And the case will be stronger still when we come to apply a similar argument to the relations between the supply of labour of any kind and the demand for it.

Looseness of the connection between the supply price of a commodity and its Real Cost of production.

This then points to a limitation of the doctrine that the price at which a thing can be produced represents its Real Cost of production, that is, the efforts and sacrifices which have been directly and indirectly devoted to its production. That doctrine might indeed represent facts accurately enough in a stationary society, in which people's habits of life, and the methods and volume of production remained unchanged from one generation to another; provided that people were tolerably free to choose those occupations for their capital and labour which seemed most advantageous. But in an age

of change such as this, the equilibrium of normal demand and supply does not thus correspond to any precise relation between an aggregate of pleasures got from the consumption of the commodity and an aggregate of efforts and sacrifices involved in producing them; and it would not do so even if normal earnings and interest were exact measures of the efforts and sacrifices for which they are severally the money payments. It represents only the equilibrium of the forces working at the margins of demand and supply, tending to increase the amount demanded or to diminish the amount supplied at the equilibrium price.

The true significance of a position of normal equilibrium.

CHAPTER IV.

COST OF PRODUCTION. THE INDUSTRIAL ENVIRONMENT.

Relation in which this Chapter stands to the two preceding.

§ 1. WE have now considered the relation in which cost of production stands to the income derived from the ownership of the "original powers" of land and other free gifts of nature, and also to that which is directly due to the investment of private capital. But there is a third class, holding an intermediate position between these two, of which something should be said here. It consists of those incomes, or rather those parts of incomes which are the indirect result of the general progress of society, rather than the direct result of the investment of capital and labour by individuals for the sake of securing certain gains to themselves.

Influence of situation on the value of agricultural land.

We have already seen how Nature nearly always gives a less than proportionate return, when measured by the *amount* of the produce raised, to increasing applications of capital and labour in the cultivation of land[1]: but that, on the other hand, if the more intensive cultivation is the result of the growth of a non-agricultural population in the neighbourhood, this very concourse of people is likely to raise the real price which the cultivator can get for every part of his produce. We saw how this influence opposes, and usually outweighs the action of the Law of Diminishing Return

[1] Book IV. Ch. III. § 1.

when the produce is measured according to its value and not according to its amount; the cultivator gets good markets in which to supply his wants, as well as good markets in which to sell, he buys more cheaply while he sells more dearly, and the conveniences and enjoyments of social life are ever being brought more within his reach[1].

In all trades access to External economies depends partly on situation.

Again we saw how the economies which result from a high Industrial Organization[2] often depend only to a small extent on the resources of individual firms. Those *Internal* economies which each establishment has to arrange for itself are frequently very small as compared with those *External* economies which result from the general progress of the industrial environment; the situation of a business nearly always plays a great part in determining the extent to which it can avail itself of External economies.

It is true that Situation often counts for little with regard to those economies that result from the gradual growth of knowledge, or from the gradual development of world markets for commodities the value of which is great in proportion to their bulk. Cost of carriage is not a very large element in the budget of a watch-factory wherever it is placed: though near access to markets where specialized skill can be easily got may be very important to it. But in the great majority of industries the success of a business depends chiefly upon the resources and the markets of its own immediate neighbourhood; and the Situation value which a site derives from the growth of a rich and active population close to it, or from the opening up of railways and other good means of communication with existing markets, is the most striking of all the influences which changes in the industrial environment exert on cost of production.

Situation Rent.

§ 2. If in any industry, whether agricultural or not, two producers have equal facilities in all respects, except that one has a more convenient situation than the other, and can buy or sell in the same markets with less cost of carriage, the differential advantage which his Situation gives

[1] Book IV. Ch. III. § 6.

[2] *Ib.* Ch. X.—XIII.

him is the aggregate of the excess charges for cost of carriage to which his rival is put. And we may suppose that other advantages of Situation, such for instance as the near access to a labour market specially adapted to his trade, can be translated in like manner into money values. When this is done for, say a year, and all are added together we have the annual money value of the advantages of situation which the first business has over the second; and the corresponding difference in the incomes derived from the two businesses is commonly regarded as a difference of Situation Rent. If we suppose the second of the two sites to have less advantages of situation than any other we may regard it as having no special Situation Rent; and then the income derived from the differential advantage of the former site constitutes the whole of its Situation Rent[1].

Exceptional cases in which the income derived from advantageous situation is to be regarded as profits rather than rent.

§ 3. There are however some exceptional cases in which this income derived from an advantageous situation is not properly to be regarded as rent but rather as profits. Sometimes for instance the settlement of a whole town, or even district is planned on business principles, and carried out as an investment at the expense and risk of a single person or company. The movement may be partly due to philanthropic or religious motives, but its financial basis will in any case be found in the fact that the concourse of numbers is itself a cause of increased economic efficiency. Under ordi-

[1] If we suppose that two farms which sell in the same market, return severally to equal applications of capital and labour amounts of produce the first of which exceeds the second by the extra cost of carrying its produce to market, then the rent of the two farms will be the same. (The capital and labour applied to the two farms are here supposed to be reduced to the same money measure, or which comes to the same thing, the two farms are supposed to have equally good access to markets in which to buy.) Again, if we suppose that two mineral springs A and B supplying exactly the same water are capable of being worked each to an unlimited extent at a constant money cost of production, this cost being say twopence a bottle at A whatever the amount produced by it, and two pence halfpenny at B; then those places to which the cost of carriage per bottle from B is a half-penny less than from A, will be the neutral zone for their competition. (If the cost of carriage be proportional to the distance, this neutral zone is a hyperbola of which A and B are foci.) A can undersell B for all places on A's side of it, and *vice versa*; and each of them will be able to derive a Monopoly Rent from the sale of its produce within its own area. This is a type of a great many fanciful, but not uninstructive problems which readily suggest themselves. Compare Von Thünen's brilliant researches in *Der isolirte Staat*.

nary circumstances the chief gains arising from this efficiency would accrue to those who are already in possession of the place: but the chief hopes of commercial success, by those who undertake to colonise a new district or build a new town, are usually founded on securing these gains for themselves.

Illustrations from Saltaire and Pullman City.

When for instance Mr Salt and Mr Pullman determined to take their factories into the country and found Saltaire and Pullman city, they foresaw that the land, which they could purchase at its value for agricultural purposes, would obtain the special Situation value which town property derives from the immediate neighbourhood of a dense population. And similar considerations have influenced those who, having fixed upon a site adapted by nature to become a favourite watering-place, have bought the land and spent large sums in developing its resources: they have been willing to wait long for any net income from their investment in the hope that ultimately their land would derive a high Situation value from the concourse of people attracted to it[1].

In all such cases the yearly income derived from the land (or at all events that part of it which is in excess of the agricultural rent) is for many purposes to be regarded as profits rather than rent. And this is equally true whether the land is that on which the factory itself at Saltaire or Pullman city is built, or that which affords a high "ground-rent" as the site of a shop or store, whose situation will enable it to do a brisk trade with those who work in the factory. For in such cases great risks have to be run; and in all undertakings in which there are risks of great losses, there must also be hopes of great gains. The normal expenses of production of a commodity must include payment for the ventures required for producing it, sufficient to cause those who are on the margin of doubt whether to venture or not, to regard the probable net amount of their gains—net, that is after deducting the probable amount of their losses—as compensating them for their trouble and their outlay. And that the gains resulting from such ven-

[1] Cases of this kind are of course most frequent in new countries. But they are not very rare in old countries: Saltburn is a conspicuous instance.

tures are not much more than sufficient for this purpose is shown by the fact that they are not as yet very common. They are however likely to be more frequent in those industries which are in the hands of very powerful corporations. A large railway company for instance can found a Crewe or a New Swindon for manufacturing railway plant without running any great risk[1].

Improvements effected at the joint expense of the landowners concerned.

Somewhat similar instances are those of a group of landowners who combine to make a railway, the net traffic receipts of which are not expected to pay any considerable interest on the capital invested in making it; but which will greatly raise the value of their land[2]. In such cases part of the increase of their incomes as landowners ought to be regarded as profits on capital which they have invested in the improvement of their land: though the capital has gone towards making a railway instead of being applied directly to their own property.

Other cases of like nature are main drainage schemes and other plans for improving the general condition of agricultural or town property, in so far as they are carried out by the landowners at their own expense, whether by private agreement or by the levying of special rates on themselves. Similar cases again are found in the investment of capital by a nation in building up its own social and political

[1] Governments have great facilities for carrying out schemes of this kind, especially in the matter of choosing new sites for garrison towns, arsenals, and establishments for the manufacture of the materials of war. In comparisons of the expenses of production by government and by private firms, the sites of the government works are often reckoned only at their agricultural value. But such a plan is misleading. A private firm has either to pay heavy annual charges on account of its site, or to run very heavy risks if it tries to make a town for itself. And therefore in order to prove that government management is for general purposes as efficient and economical as private management, a full charge ought to be made in the balance sheets of government factories for the town-value of their sites. In those exceptional branches of production for which a government can found a manufacturing town without incurring the risks that a private firm would incur in a similar case, that point of advantage may fairly be reckoned as an argument for governments undertaking those particular businesses. But as things are at present, at all events in England, such industries are chiefly those which are devoted to supplying the demands of the army and navy; and it happens that by discouraging private enterprise in these directions Government while avoiding small commercial risks in time of peace, may lay itself open to far more important military risks in times of war.

[2] Compare Book v. Ch. VIII. § 6.

organization as well as in promoting the education of the people and in developing its sources of material wealth[1].

Thus that improvement of the environment, which adds to the value of land and of other free gifts of nature, is in a good many cases partly due to the deliberate investment of capital by the owners of the land for the purpose of raising its value; and therefore a portion of the consequent increase of income may be regarded as profits when we are considering long periods. But in many cases it is not so; and any increase in the net income derived from the free gifts of nature which was not brought about by, and did not supply the direct motive to, any special outlay on the part of the landowners, is to be regarded as rent for all purposes[2].

Progress may lower the value of the appliances of production where this can be separated from that of their sites;

§ 4. We may reasonably consider the development of the industrial environment as likely to raise the value of land. But on the other hand it more often than not tends to lessen the value of machinery and other kinds of fixed capital, in so far as their value can be separated from that of the sites on which they rest. It is true that a sudden burst of prosperity may enable the existing stock of appliances in any trade to earn for a time a very high income (which, as we saw in the last chapter, may be regarded as a Quasi-rent). But things which can be multiplied without limit cannot retain for long a scarcity value; and if they are fairly durable, as for instance ships and blast furnaces and textile machinery, they are likely to suffer great depreciation from the rapid progress of improvement.

but not if the value of their sites is reckoned in,

But the value of such things as railways and docks depends in the long run chiefly on their situation. If that is good, the progress of their industrial environment will raise their net value even after allowance has been made for the charges to which they may be put in keeping their appliances abreast of the age[3].

Compare Book II. Ch. II. § 4.

[2] It would delay the main argument too much to discuss here cases in which property is let under a lease, or in which custom or other causes give the tenant a share of any kind temporary or permanent in the ownership of the land. In all such cases the Producers' Surplus or Rent is the same as if the land were held on the English system without a lease; only instead of being the property of one person it is distributed among several.

[3] In such cases as these, it is especially difficult to draw any line of division

though there are exceptions.

Of course there are exceptions. Economic progress may take the form of building new railways that will draw off much of the traffic of some of those already existing, or of increasing the size of ships till they can no longer enter docks, the entrance to which is through shallow waters. It is not so very long ago that the home counties were full of fears that the making of good roads would enable the more distant parts of England to compete with them in supplying London with food; and now the differential advantages of English land are in some respects being lowered by the importation of food that has travelled on Indian and American railroads, and been carried in ships made of Bessemer steel and driven by triple expansion engines[1].

The importance of the relations in which rent stands to cost of production is being increased by the growing number of valuable sites, and by the increasing scarcity of free space.

§ 5. But, taking one case with another, there is a constant and rapid increase in that part of the aggregate price paid for commodities which does not go to reward the new efforts and sacrifices required for their production, and which does not therefore enter directly into their money cost of production, but goes to the owners of those differential advantages which arise from Situation. This is partly due to the increase in the number of sites which derive a high value from their proximity to markets in which the requisites for production can be bought to advantage, and the products can be delivered cheaply and sold well. Partly it is due to the increasing scarcity of space on the earth's surface endowed by Nature with an income of heat and light, air and water; for this income freely given by Nature is the chief of those elements of fertility which man has no power to increase when he engages in agriculture, and the

between rent and profits; nothing more than a rough guess can be made as to how far the high dividends of a successful railroad are due to the advantages of its situation, and how far they are due to good management and organization, and to skill and tact in meeting the wants of customers and in inducing them to make use of it in preference to competing lines.

[1] A somewhat similar case is that of many quiet summer resorts. Their humble attractions absorbed the attention of neighbouring residents fifty years ago; but now they are impoverished by those modern facilities of travel, which induce people to take longer journeys in search of change of scene, and enrich more fashionable and more distant resorts. As steam carriage favours those soils which are exceptionally fertile but distant from good markets, so it favours those pleasure resorts which have exceptionally beautiful scenery, even though they are far away.

chief also of those elements of a wholesome life, for the want of which man's efficiency suffers in a crowded town. It is these space relations of land, which, as has already been remarked[1], distinguish it most strongly from other material things; and it is they which are the chief source of those differential advantages in production that acquire an increasing scarcity value from the progress of the industrial environment.

[1] Book IV. Ch. II. § 1.

CHAPTER V.

COST OF PRODUCTION. THE INVESTMENT OF CAPITAL IN A BUSINESS.

§ 1. THE relations between the cost of production of a commodity, and that of the things used in making it, have been considered in the preceding chapters chiefly with reference to limitations of various kinds in the sources of supply; and we have next to discuss the principles on which the general expenses of carrying on a business are to be shared among its several products.

The motives determining the investment of capital may be clearly seen in the case of a man who makes a thing for his own use.

The true nature of the investment of capital is disguised by the modern methods of doing business, in which the undertaker buys most of the labour required for his work; for he thinks chiefly of the expenses of production and seldom pays much attention to the efforts and sacrifices to which those payments more or less closely correspond, and which constitute the Real cost of production. It will be well therefore to begin by watching the action of a person who neither buys what he wants nor sells what he makes, but works on his own behalf; and who therefore balances the efforts and sacrifices which he makes on the one hand against the pleasures which he expects to derive from their fruit on the other, without the intervention of any money payments at all.

Illustration.

Let us then take the case of a man who builds a house for himself on land, and of materials, which Nature supplies gratis; and who makes his implements as he goes, the labour of making them being counted as part of the labour

of building the house. He would have to estimate the efforts required for building on any proposed plan; and to allow almost instinctively an amount increasing in geometrical proportion (a sort of compound interest) for the period that would elapse between each effort and the time when the house would be ready for his use. The utility of the house to him when finished would have to compensate him not only for the efforts, but for the waitings.

For he might have applied these efforts, or efforts equivalent to them, to producing immediate gratifications; and if he deliberately chose the deferred gratifications, it would be because, even after allowing for the disadvantages of waiting, he regarded them as outweighing the earlier gratifications which he could have substituted for them. The motive force then tending to deter him from building the house would be his estimate of the aggregate of these efforts, the evil or discommodity of each being increased in geometrical proportion (a sort of compound interest) according to the corresponding interval of waiting. The motive on the other hand impelling him to build it, would be expectation of the satisfaction which he would have from the house when completed; and that again might be resolved into the aggregate of many pleasures more or less remote, and more or less certain, which he expected to derive from its use[1].

If he thought that this satisfaction which he would derive from the house when finished, this aggregate of discounted values of pleasures that it would afford him, would be more than a recompense to him for all the efforts and waitings which he had undergone, he would decide to build. If the two motives, one deterring the other impelling, seemed equally balanced, he would be on the margin of doubt. Probably the impelling motive would be much stronger than the deterring with regard to some part of the house: but as he turned over more and more ambitious plans, there would be a point at which the advantages of any further extension would be balanced by the efforts and waitings required for making

[1] See Book III. Ch. II. § 3.

it; and that part of the building would be on the margin of profitableness of the investment of his capital[1].

There would probably be several ways of building parts of the house; some parts for instance might almost equally well be built of wood or of rough stones: the investment of capital on each plan for each part of the accommodation would be compared with the advantages offered thereby, and each would be pushed forward till the margin of profitableness had been reached. Thus there would be a great many margins of profitableness: one corresponding to each kind of plan on which each kind of accommodation might be provided.

On such a supposition as that made in this section, we may look upon capital as stored up effort, the amount of effort and the amount of sacrifice involved in the waiting for the result being measured quantitatively[2].

Transition to the investment of capital by the modern undertaker of business enterprises.

§ 2. This illustration may serve to keep before us the way in which the efforts and sacrifices which are the Real cost of production of a thing, underlie the expenses which are its Money cost. But, as has just been remarked, the modern business man commonly takes the payments which he has to make, whether for wages or raw material, as he finds them; without staying to inquire how far they are an accurate measure of the efforts and sacrifices to which they correspond. His expenditure is generally made piece-meal; and the longer he expects to wait for the fruit of any outlay, the richer must that fruit be in order to compensate him. The anticipated fruit may not be certain; and in that case he will have to allow for the risk of failure. After making that allowance, the fruit of the outlay must be expected to exceed the outlay itself by an amount which, independently of his own remuneration, increases at compound interest in proportion to the time of waiting[3].

For brevity we may speak of any element of outlay (allow-

[1] See Mathematical Note XXIV.

[2] See Mathematical Note XXV.

[3] We may, if we choose, regard the price of the business undertaker's own work as part of the original outlay, and reckon compound interest on it together with the rest. Or we might substitute for compound interest a sort of "compound profit." The two courses are not strictly convertible: and at a later stage we shall find that in certain cases the first is to be preferred, and in others the second.

ance being made for the remuneration of the undertaker himself) when increased by compound interest in this way, as ACCUMULATED; just as we used the term Discounted to represent the present value of a distant pleasure. Each element of outlay has then to be Accumulated for the time which will elapse between its being incurred and its bearing fruit; and the aggregate of these accumulated elements is the total outlay involved in the enterprise.

Accumulation of past and discounting of future outlays and receipts.

If the enterprise were, say, to dig out a dock-basin on a contract, the payment for which would be made without fail when the work was finished; and if the plant used in the work might be taken to be worn out in the process, and valueless at the end of it; then the enterprise would be just remunerative if this aggregate of outlays accumulated up to the period of payment were just equal to that payment.

The balancing of one against the other.

But in fact in nearly every business undertaking the incomings are a constant process as well as the outgoings. And to complete the case we must suppose a balance sheet struck looking backwards and looking forwards. Looking backwards we should add together the net outlays accumulated up to that time, deducting from each element of outlay any incomings that came in at the same time. Looking forwards we should deduct from each future incoming any outlay that would be made at the same time, together with allowance for the undertaker's own remuneration; and regarding the result as the net incoming at that time, we should discount it at compound interest for the period during which it would be deferred. The aggregate of the net incomings so discounted would be balanced against the aggregate of the accumulated outlays: and if the two were just equal, the business would be just remunerative.

Difficulties connected with making allowance for depreciation, and distinguishing between expenditure on current and on capital account.

Almost every trade has its own difficulties and its own customs connected with the task of valuing the capital that has been invested in any business, and of allowing for the Depreciation which that capital has undergone from wear and tear, from the influence of the elements, from new inventions, and from changes in the course of trade. These two last causes may temporarily raise the value of some kinds of fixed capital, at the same time that they are lowering that of

others. And people whose minds are cast in different moulds, or whose interests in the matter point in different directions, will often differ widely on the question what part of the expenditure required for adapting buildings and plant to changing conditions of trade may be regarded as an investment of new capital, and what ought to be set down as charges incurred to balance Depreciation and treated as expenditure deducted from the current receipts, before determining the net profits or true income earned by the business. These difficulties, and the consequent differences of opinion, are greatest of all with regard to the investment of capital in building up a business connection, and the proper method of appraising the goodwill of a business, or its value "as a going concern[1]."

The Law of Substitution.

§ 3. When at the beginning of a business an estimate is made of the profits likely to be earned in it, all the entries for outgoings and incomings alike are prospective. And at that and every successive stage the mind of the undertaker is ceaselessly striving so to modify his arrangements as to obtain greater results with a given expenditure or equal results with a less expenditure. He is continually comparing the efficiency and the supply prices of different factors of production which may be used in obtaining the same result, so as to hit upon that combination which will give the largest incomings in proportion to any given outlay; or, in other words, he is ceaselessly occupied with the Law of Substitution[2].

Every locality has incidents of its own which affect in various ways the methods of arrangement of every class of business that is carried on in it. But even in the same place

[1] On the whole of this subject the reader may be referred to Mr Matheson's *Depreciation of Factories and their Valuation.*

Besides the difficulties referred to in the text, there is another group arising from changes in the general purchasing power of money. If that has fallen, or, in other words, if there has been a rise of general prices, the value of a factory may appear to have risen when it has really remained stationary. Confusions arising from this source introduce greater errors into estimates of the real profitableness of different classes of business than would at first sight appear probable. But all questions of this kind must be deferred till we have discussed the Theory of Money.

[2] Book v. Ch. III. 3.

Different routes are chosen in obtaining the same end.

and the same trade no two persons pursuing the same aims will adopt exactly the same routes. The tendency to variation is a factor of progress; and the abler are the undertakers in any trade the more powerful is this factor likely to be. In some trades, as for instance cotton spinning, the possible variations are confined within narrow limits: no one can hold his own at all who does not use machinery, and very nearly the latest machinery, for every part of the work. But in others, as for instance in some branches of the wood and metal trades, in farming, and in shop-keeping there can be great variations. For instance, of two manufacturers in the same trade, one will perhaps have a larger wages bill and the other heavier charges on account of machinery; of two retail dealers one will have a larger capital locked up in stock and the other will spend more on advertisements and other means of building up the immaterial capital of a profitable trade connection. And in minor details the variations are numberless. Each man's actions are influenced by his special opportunities and resources, as well as by his temperament and his associations.

The margin of profitableness is not a mere point on any one route, but a line intersecting all routes.

But each man, taking account of his own means, will push the investment of capital in his business in each several direction until what appears in his judgment to be the margin of profitableness is reached; that is, until there seems to him no good reason for thinking that the gains resulting from any further investment in that particular direction would compensate him for his outlay. The margin of profitableness is not to be regarded as a mere point on any one fixed line of possible investment; but as a boundary line of irregular shape cutting one after another every possible line of investment.

CHAPTER VI.

COST OF PRODUCTION. PRIME COST AND TOTAL COST. COST OF MARKETING. INSURANCE AGAINST RISK. COST OF REPRODUCTION.

§ 1. WHEN investing his capital in providing the means of carrying on a business, the undertaker looks to being recouped by the price obtained for its various products; and he expects to be able under normal conditions to charge for each of them a price that will cover not only its (Money) PRIME COST; *i.e.* the expenses which he incurs directly and specially for its production, but also a share of the general expenses of the business, which we may call its SUPPLEMENTARY COST. These two elements together make its (Money) TOTAL COST.

Prime Cost.

Supplementary and Total cost.

We may follow ordinary usage, and take the term Prime Cost in a narrow sense, which includes nothing but the (money) cost of the raw material used in making the commodity and the wages of that part of the labour spent on it which is paid by the day or the week: the salaries of the upper employés are excluded, partly because the time which they have devoted specially to it cannot always be easily ascertained, and partly because the charges to which the business is put on account of their salaries cannot be adapted quickly to changes in the amount of work there is for them to do.

Prime cost is commonly taken to include only the price of raw material and ordinary labour.

This is the Prime cost which a manufacturer has commonly in view when, trade being slack, he is calculating the lowest price at which it would be worth his while to accept

an order, irrespectively of any effect that his action might have in spoiling the market for future orders. And in extreme cases he will even be willing to accept a lower price than this. For when he has been for some time short of work, and has already dismissed all save the best of his employés, it would—to say nothing of any less selfish motive—almost answer his purpose to pay the remainder full wages to beat time, so to speak; in order that he may have them at hand when trade revives, and high profits are again to be made.

Where there is much fixed capital, prices can fall far below their normal level without reaching Prime cost;

In trades which use very expensive plant, the Supplementary cost of goods is a large part of their Total cost; and an order at much less than their normal price may leave a large surplus above their Prime cost. But if in their anxiety to prevent their plant from being idle, producers accept such orders, they glut the market, and tend to prevent prices from reviving. If they pursue this policy constantly and without moderation, they may keep prices so low as to drive capital out of the trade, ruining many of those employed in it, themselves perhaps among the number. During all this time the income derived from their plant will be very low; but after a while the demand for their goods will revive, and the means for meeting it will be inadequate. The prices of the goods will then rise high above their normal level, and the plant that yet remains in working order, will for a time obtain a very high income (or Quasi-rent). Extreme variations of this kind are in the long run beneficial neither to producers nor to consumers; and general opinion is not altogether hostile to that code of trade morality which condemns the action of any one who "spoils the market" by being too ready to accept a price that does little more than cover the Prime cost of his goods, and allows but little on account of his general expenses. The public listen with some indulgence to those who argue that a trade combination or a Trust is the only means available for securing a reasonable steadiness of price. Questions of this kind are of great and growing importance and will occupy much of our attention later on when we come to consider the causes of commercial fluctuations.

But at present we pass to consider the task of assigning to each branch of a business its proper share of the general expenses, on the supposition that a far-sighted policy is being pursued, and that it is sought to assign to each commodity that price which will enable it, under normal conditions, to be sold permanently and afford a normal profit.

but for the present we may neglect such fluctuations.

§ 2. We have already discussed[1] the difficulty of assigning to each of several *joint-products* its proper supply price. It often happens that a joint-product made in one branch of a business is used as a raw material in another; and then the question of the relative profitableness of the two branches can be accurately determined only by an elaborate system of book-keeping by double entry; though in practice it is more common to rely on rough estimates made by an almost instinctive guess. Some of the best illustrations of this difficulty are found in agriculture, especially when the same farm combines permanent pasture and arable land worked on long rotation[2].

Difficulty arising when one branch of a business supplies a raw material to another.

Another difficult case is that of the shipowner who has to apportion the expenses of his ship between heavy goods and goods that are bulky but not heavy. He tries, as far as may be, to get a mixed cargo of both kinds; and an important element in the struggle for existence of rival ports is the disadvantage under which those ports lie which are able to offer a cargo only of bulky or only of heavy goods: while a port whose chief exports are weighty but not bulky, attracts to its neighbourhood industries which make for export goods that can be shipped from it at low freights. The Staffordshire Potteries, for example, owe part of their success to the low freights at which their goods are carried by ships sailing from the Mersey with iron and other heavy cargoes.

Difficulties as to the joint products of the same business,

But there is free competition in the shipowning trade, and it has great powers of variation as regards the size and shape of ships, the routes which they take, and the whole

are often overcome through the power

[1] Book v. Ch. vi. § 4.

[2] There is scope for applications of mathematical or semi-mathematical analyses such as are indicated in Book v., Ch. vi., to some of the chief practical difficulties of book-keeping by double entry in different trades.

of varying the details of the plan of production.

method of trading; and thus in many ways the general principle can be applied, that the relative proportions of the joint products of a business should be so modified that the marginal expenses of production of either product should be equal to its marginal demand price[1]. Or, in other words, the amount of carrying power for each kind of cargo has a constant tendency to move towards equilibrium at a point at which the demand price for that amount in a normal state of trade is just sufficient to cover the expenses of providing it; these expenses being reckoned so as to include not only its (money) Prime cost, but also all those general expenses of the business which are in the long run incurred on its account, whether directly or indirectly[2].

A first approximation is sometimes got by treating Supplementary as proportional to Prime cost.

In some branches of manufacture it is customary to make a first approximation to the Total cost of producing any class of goods, by assuming that their share of the general expenses of the business is proportionate either to their Prime cost, or to the special labour bill that is incurred in making them. Corrections can then be made to meet such cases as those of goods which require either more or less than an average share of space or light, or of the use of expensive machinery; and so on.

All such questions are of considerable interest, but we must not pursue them in detail[3]. There are however two elements of the general expenses of a business, the sharing of which between the different branches require some special attention. They are the expense of marketing and that of insurance against risk.

The difficulty of assigning

§ 3. Some kinds of goods are easily marketed; there is a steady demand for them, and it is always safe to make

[1] See Book v. Ch. vi. § 4.

[2] Of course this does not apply to railway rates. For a railway company having very little elasticity as regards its methods, and often not much competition from outside, has no inducement to endeavour to adjust the charges which it makes for different kinds of traffic to their cost to itself. In fact though it may ascertain the Prime Cost in each case easily enough, it cannot determine accurately what are the relative Total costs of fast and slow traffic, of short and long distance traffic, of light and heavy traffic; nor again of extra traffic when its lines and its trains are crowded and when they are nearly empty.

[3] Some interesting particulars are given in Garcke and Fell's *Factory Accounts*.

them for stock. But for that very reason competition cuts their price "very fine", and does not allow a large margin above their Prime cost. Sometimes the tasks of making and selling them can be rendered almost automatic, so as to require very little to be charged on their account under the heads of the expenses of management and marketing. But in practice it is not uncommon to charge such goods with even less than the small share that would properly fall to them, and to use them as a means of obtaining and maintaining a business connection, that will facilitate the marketing of other classes of goods, the production of which cannot so well be reduced to routine; for as to these there is not so close a competition. Manufacturers, especially in trades connected with furniture and dress, and retailers in almost all trades, frequently find it best to use certain of their goods as a means of advertising others, and to charge the first with less and the second with more than their proportionate share of Supplementary expenses. In the former class they put those goods which are so uniform in character and so largely consumed that nearly all purchasers know their value well, in the second those with regard to which purchasers think more of consulting their fancy than of buying at the lowest possible price.

to each branch of a mixed business its proper share of the expenses of marketing.

All difficulties of this kind are much increased by that instability of supply price which results from the action of the Law of Increasing Return, whenever that action is very powerful. We have seen[1] that in seeking the normal supply price in such cases we must select as representative a business which is managed with normal ability and so as to get its fair share of the economies both Internal and External resulting from industrial organization; and that these economies, though they fluctuate with the fortunes of particular businesses, yet increase generally when the aggregate production increases. Now it is obvious that if a manufacturer makes a commodity the increased production of which would put largely increased Internal economies within his reach, it is worth his while to sacrifice a great

The difficulty becomes very great when the Law of Increasing Return acts strongly;

[1] Book v. Ch. iv. § 5.

deal in order to push its sales in a new market. If he has a large capital, and the commodity is one in much demand, his expenditure for this purpose may be very great, even exceeding that which he devotes directly to the manufacture: and if, as is likely, he is pushing at the same time several other commodities, nothing more than a very rough guess can be made as to what share of this expenditure which should be charged to the sales of each of them in the current year, and what share should be charged to the connection which he is endeavouring to build up for them in the future.

especially when the production falls into the hands of a few large firms.

In fact when the production of a commodity conforms to the Law of Increasing Return in such a way as to give a very great advantage to large producers, it is apt to fall almost entirely into the hands of a few large firms; and then the normal marginal supply price cannot be determined on the plan just referred to, because that plan assumes the existence of a great many competitors with businesses of all sizes, some of them being young and some old, some in the ascending and some in the descending phase. The production of such a commodity really partakes in a great measure of the nature of a monopoly; and its price is likely to be so much influenced by the incidents of the campaign between rival producers, each struggling for an extension of territory, that no free play is allowed to the normal action of economic forces, and it can scarcely be said to have a normal supply price.

Economies in production are often balanced by local facilities for marketing.

Economic progress is constantly offering new facilities for marketing goods at a distance: it not only lowers cost of carriage, but what is often more important, it enables producers and consumers in distant places to get in touch with one another. In spite of this, the advantages of the producer who lives on the spot are very great in many trades; they often enable him to hold his own against competitors at a distance whose methods of production are more economical. He can sell in his own neighbourhood as cheaply as they can, because though the Prime cost is greater for his goods than for theirs, he escapes much of the Supplementary cost which they incur for marketing. But time is on the side of the more economic methods of production; his distant competitor will gradually get a stronger footing in the

place, unless he or some new man adopts their improved methods[1].

A great part of these expenses of marketing results from the risk that a thing prepared for a certain market will not find the expected sale there. But it still remains to make a closer study of the relation in which Insurance against the risks of a business stands to the supply price of any particular commodity produced in it.

An insurance policy can generally be effected against loss by fire or sea, at rates that are not extravagantly high;

§ 4. The manufacturer and the trader commonly insure against injury by fire and loss at sea; and the premiums which they pay are among the general expenses, a share of which has to be added to the Prime cost in order to determine the Total cost of their goods. But no insurance can be effected against the great majority of business risks.

Even as regards losses by fire and sea, insurance companies have to allow for possible carelessness and fraud; and must therefore, independently of all allowances for their own expenses and profits, charge premiums considerably higher than the true equivalent of the risks run by the buildings or the ships of those who manage their affairs well. The injury done by fire or sea is however likely, if it occurs at all, to be so very great that it is generally worth while to pay this extra charge; partly for special trade reasons, but chiefly for the reason, already discussed[2], that the total utility of wealth increases less than in proportion to its amount. But the greater part of business risks are so inseparably connected with the general management of the business that an insurance company which undertook them would really make itself responsible for the business: and in consequence every firm has to act as its own insurance office with regard to them. The charges to which it is put under this head are part of its general expenses, and a share of them has to be added to the Prime cost of each of its products. But here

but not against most other business risks.

[1] It has already been noticed (Book v. Ch. vi. § 5) that if an improvement in making a commodity is patented, local producers who cannot avail themselves of the improvement, may make up for this disadvantage by their superior facilities for marketing the commodity in their own neighbourhood; and in such a case two kinds of the same commodity, both of which conform to the Law of Increasing Return, are likely to remain in the market together for a long while.

[2] Book III. Ch. IV. § 3.

there are two difficulties. In some cases insurance against risk is apt to be left out of account altogether, in others it is apt to be counted twice over.

A shipowner who takes out no insurance policy, must yet add to Prime cost a charge for Insurance against risks,

Let us take an illustration from the shipping trade. A large shipowner sometimes declines to insure his ships with the underwriters: and sets aside part at least of the premiums that he might have paid to them, to build up an insurance fund of his own. But he must still, when calculating the Total cost of working a ship, add to its Prime cost a charge on account of insurance. And he must do the same thing, in some form or other, with regard to those risks against which he could not buy an insurance policy on reasonable terms even if he wanted to. At times, for instance, some of his ships will be idle in port, or will earn only nominal freights: and to make his business remunerative in the long run he must, in some form or other, charge his successful voyages with an insurance premium to make up for his losses on those which are unsuccessful. In general however he does this, not by making a formal entry in his accounts under a separate head, but by the simple plan of taking the average of successful and unsuccessful voyages together; and when that has once been done, insurance against these risks cannot be entered as a separate item in cost of production, without counting the same thing twice over.

but not against those which he has avoided by special outlay; lest he should count the same thing twice. Similar instances from risks of fire,

Having decided to run these risks himself, he is likely to spend a little more than the average of his competitors, in providing against their occurrence; and this extra expense enters in the ordinary way into his balance sheet. It is really an insurance premium in another form; and therefore he must not count insurance against this part of the risk separately, for then he would be counting it twice over. Again certain insurance companies in America[1] take risks against fire in factories at very much less than the ordinary rates, on condition that certain prescribed precautions are taken, such as providing automatic sprinklers and making the walls and floors solid. The expense incurred in these arrangements is really an insurance premium; and care must be

[1] The plan was originated by the economist Mr Edward Atkinson of Boston.

taken not to count it twice over. A factory which undertakes its own risks against fire will have to add to the Prime cost of its goods an allowance for insurance at a lower rate, if it is arranged on this plan than if built in the ordinary way.

from farming risks, &c.

Again when a farmer has calculated the expenses of raising any particular crop with reference to an average year, he must not count in addition insurance against the risk that the season may be bad, and the crop a failure: for in taking an average year, he has already set off the chances of exceptionally good and bad seasons against one another. When the earnings of a ferryman have been calculated on the average of a year, allowance has already been made for the risk that he may sometimes have to cross the stream with an empty boat.

and from risks of Depreciation.

Again when a manufacturer has taken the average of his sales of dress materials over a long time, and bases his future action on the results of his past experience, he has already allowed for the risks that the machinery will be depreciated by new inventions that will render it nearly obsolete and that his goods will be depreciated by changes in fashion. If he were to allow separately for insurance against these risks, he would be counting the same thing twice over.

But uncertainty is an evil in itself,

§ 5. But though when we have counted up the average receipts of a risky trade, there is no separate allowance to be made for insurance against risk; there may be, and often is, something to be allowed as a charge on account of uncertainty. It is true that an adventurous occupation, such as gold mining, has special attractions for some people: the deterrent force of risks of loss in it is less than the attractive force of chances of great gain, even when the value of the latter estimated on the actuarial principle is much less than that of the former; and as Adam Smith has pointed out[1], a risky trade, in which there is an element of romance, often becomes so overcrowded that the average earnings in it are lower than if there were no risks to be run. But in the large majority of cases the influence of risk is in the opposite direction; a railway stock that is certain to pay four per cent.

[1] *Wealth of Nations*, Book I. Ch. X.

will sell for a higher price than one which is equally likely to pay one or seven per cent. or any intermediate amount.

and an average gain generally counts for less, the more uncertain the elements of which it is made up.

Every trade then has its own peculiarities, but in most cases the evils of uncertainty count for something, though not very much: in some cases a slightly higher average price is required to induce a given outlay, if that average is the mean of widely divergent and uncertain results, than if the adventurer may reckon confidently on a return that differs but little from that average. To the average price therefore we must add a recompense for uncertainty, if that is unusually great; though if we added insurance against risk we should be counting the greater part of that twice over[1].

To substitute cost of reproduction for cost of production in the theory of normal values is to make no real change;

§ 6. This discussion of the risks of trade has again brought before us the fact that the value of a thing, though it tends to equal its normal (money) cost of production, does not coincide with it at any particular time, save by accident. Carey, observing this, suggested that we should speak of value in relation to (money) cost of Reproduction instead of in relation to cost of production.

The suggestion has, however, no significance so far as normal values are concerned. For normal cost of production and normal cost of reproduction are convertible terms; and no real change is made by saying that the normal value of a thing tends to equal its normal (money) cost of reproduction instead of its normal cost of production. The former phrase is less simple than the latter, but means the same thing.

and though the market value of a thing is sometimes nearer cost of reproduction than cost of production, it is not governed by cost of reproduction.

And no valid argument for the change can be founded on the fact, which may be readily admitted, that there are some few cases in which the market value of a thing is nearer its cost of reproduction than the cost that was actually incurred in producing that particular thing. The present price of an iron ship for instance, made before the great recent improvements in the manufacture of iron, might diverge less from the cost of reproducing it, that is of producing another just like it by modern methods, than from that which was actually incurred in producing it. But the price would probably be less than the cost of reproduction of the ship, because the art

[1] The evils resulting from the uncertainty involved in great business risks are well shown by Von Thünen (*Isolirte Staat*, II. 1. p. 82).

of designing ships has improved as fast as that of manufacturing iron. It may still be urged that the price of the ship is equal to that of producing a ship, which would be equally serviceable, on a modern plan and by modern methods; but even if that were true, it would not be the same thing as saying that the value of the ship is equal to its cost of reproduction; and, as a matter of fact, when, as often happens, an unexpected scarcity of ships causes freights to increase very rapidly, those who are anxious to reap the harvest of profitable trade, will pay for a ship in sailing order a price much above that for which a ship-building firm would contract to produce another equally good and deliver it some time hence. Cost of reproduction exerts little direct influence on value, save when purchasers can conveniently wait for the production of new supplies.

Again, there is no connection between cost of reproduction and price in the cases of food in a beleagured city, of quinine the supply of which has run short in a fever-stricken island, of a picture by Raphael, of a book that nobody cares to read, of an armour-clad ship of obsolete pattern, of fish when the market is glutted, of fish when the market is nearly empty, of a cracked bell, of a dress material that has gone out of fashion, or of a house in a deserted mining village.

Note on Ricardo's Theory of Cost of Production in relation to Value.

Ricardo's theory of cost of production in relation to value occupies so important a place in the history of economics that any misunderstanding as to its real character must necessarily be very mischievous; and unfortunately it is so expressed as almost to invite misunderstanding. In consequence there is a widely spread belief that it has needed to be reconstructed by the present generation of economists. The purpose of the present Note is to show cause for not accepting this opinion; and for holding on the contrary that the foundations of the theory as they were left by Ricardo remain intact, that much has been added to them, and that very much has been built upon them, but that little has been taken from them.

When Ricardo was addressing a general audience, he drew largely upon his wide and intimate knowledge of the facts of life, using them "for illustration, verification, or the premises of argument." But in

his *Principles of Political Economy* "the same questions are treated with a singular exclusion of all reference to the actual world around him" (see an admirable article on *Ricardo's Use of Facts* in the first volume of the Harvard *Quarterly Journal of Economics*, edited by Prof. Dunbar). And he wrote to Malthus in May, 1820 (the same year in which Malthus published his *Principles of Political Economy considered with a view to their practical application*) "Our differences may in some respects, I think, be ascribed to your considering my book as more practical than I intended it to be. My object was to elucidate principles, and to do this I imagined strong cases, that I might show the operation of those principles." His book makes no pretence to be systematic. He was with difficulty induced to publish it; and, if in writing it he had in view any readers at all, they were chiefly those statesmen and business men with whom he associated. So he purposely omitted many things which were necessary for the logical completeness of his argument, but which they would regard as obvious. And further, as he told Malthus in the following October, he was "but a poor master of language." His exposition is as confused as his thought is profound; he uses words in artificial senses which he does not explain, and to which he does not adhere; and he changes from one hypothesis to another without giving notice.

If then we desire to understand him, we must interpret him generously, more generously than he himself interpreted Adam Smith. When his words are ambiguous, we must give them that interpretation which other passages in his writing indicate that he would have wished us to give them. If we do this with the desire to ascertain what he really meant, we shall find very little to reject in his doctrines, though we may find much that needs to be added to them.

He considered, for instance (*Principles*, Ch. I. § 1) that Utility is "absolutely essential" to (normal) value though not its measure; while the value of things "of which there is a very limited quantity...varies with the wealth and inclinations of those who are desirous to possess them." And elsewhere (*Ib.* Ch. IV.) he insists on the way in which the market fluctuations of prices are determined by the amount available for sale on the one hand, and "the wants and wishes of mankind" on the other.

Again in a profound, though incomplete, discussion of the difference between "Value and Riches" he seems to be feeling his way towards the distinction between Marginal and Total Utility. For by Riches he means Total Utility, and he seems to be always on the point of stating that value corresponds to the increment of Riches which results from that part of the commodity which it is only just worth the while of purchasers to buy; and that when the supply runs short, whether temporarily in consequence of a passing accident, or permanently in consequence of an increase in cost of production, there is a rise in that marginal increment of Riches which is measured by value, at

the same time that there is a diminution in the aggregate Riches, the Total Utility, derived from the commodity. Throughout the whole discussion he is trying to say, though (being ignorant of the terse language of the Differential Calculus) he did not get hold of the right words in which to say it neatly, that marginal utility is raised and total utility is lessened by any check to supply.

But while not thinking that he had much to say that was of great importance on the subject of Utility, he believed that the connection between Cost of Production and Value was imperfectly understood; and that erroneous views on this subject were likely to lead the country astray in practical problems of Taxation and Finance: and so he addressed himself specially to this subject. But here also he made short cuts.

For, though he was aware that commodities fall into three classes according as they obey the Law of Diminishing, of Constant, or of Increasing Return; yet he thought it best to ignore this distinction in a theory of value applicable to all kinds of commodities. A commodity chosen at random was just as likely to obey one as the other of the two Laws of Diminishing and of Increasing Return; and therefore he thought himself justified in assuming provisionally that they all obeyed the Law of Constant Return. In this perhaps he was justified, but he made a mistake in not stating explicitly what he was doing.

He argued in the first Section of his first Chapter that "in the early stages of society" where there is scarcely any use of capital, and where any one man's labour has nearly the same price as any other man's, it is, broadly speaking, true that "the value of a commodity, or the quantity of a commodity for which it will exchange, depends on the relative quantity of labour which is necessary for its production." But he went on to show that these assumptions cannot be properly made in later stages of civilization, and that the relation of value to cost of production is more complex than that with which he starts.

His next step was to introduce in Section II. the consideration that "labour of different qualities is differently rewarded." If the wages of a jeweller are twice as great as those of a working labourer, an hour's work of the one must count for two hours' work of the other. Should there be a change in their relative wages, there will of course be a corresponding change in the relative values of things made by them. But instead of analysing, as economists of this generation do, the causes which make (say) jewellers' wages change from one generation to another relatively to those of ordinary labourers, he contented himself with stating that such variations cannot be great.

Next he urged that in reckoning the cost of production of a commodity, account must be taken not only of the labour applied immediately to it, but also of that which is bestowed on the implements, tools and buildings with which such labour is assisted; that "the principle that the quantity of labour bestowed on the production of commodities regulates their relative value is considerably modified

by the employment of machinery or other fixed and durable capital... and by the unequal durability of capital and by the unequal rapidity with which it is returned to its employer."

He thus insisted that things on which equal amounts of labour had been spent might have very different values, if the labour used on the one was on the average more highly skilled than that used on the other; or if it was assisted by more capital; or, even where the capitals required were equal, if the investment of capital had to be for a longer period in the one case than in the other. But he liked short phrases and he thought that his readers would always supply for themselves the explanations of which he had given them a hint.

Once indeed, in a note at the end of the sixth Section of his first Chapter, he says:—"Mr Malthus appears to think that it is a part of my doctrine that the cost and value of a thing should be the same; it is, if he means by cost, 'cost of production' including profits. In the above passage, this is what he does not mean, and therefore he has not clearly understood me." And yet Rodbertus and Karl Marx claim Ricardo's authority for the statement that the natural value of things consists solely of the labour spent on them; and even those German economists who most strenuously combat the conclusions of these writers, are often found to admit that they have interpreted Ricardo rightly, and that their conclusions follow logically from his.

This and other facts of a similar kind show that Ricardo's reticence was an error of judgment. It would have been better if he had occasionally repeated the statement that the values of two commodities are to be regarded as in the long run proportionate to the amount of labour required for making them, only on the conditions that other things are equal: that is, that the labour employed in the two cases is equally skilled, and therefore equally highly paid; that it is assisted by proportionate amounts of capital, account being taken of the period of its investment; and that the rates of profits are equal.

Ricardo is more responsible than any one else for the habit of endeavouring to express great economic doctrines in short sentences. But in the problem of normal value the various elements mutually determine one another, as we have already seen in part and shall see more clearly later on; they do not determine one another successively in a long chain of causation.

There is perhaps no writer of modern times who has approached to the brilliant and profound originality of Ricardo more nearly than Jevons. But he appears to have judged both Ricardo and Mill harshly, and to have attributed to them doctrines narrower and less scientific than that which they really held. And his desire to emphasize an aspect of Value to which they had given insufficient prominence, was probably in some measure accountable for his saying "Repeated reflection and inquiry have led me to the somewhat novel opinion that *value depends entirely upon utility*" (*Theory*, p. 1). This statement

seems to be no less one sided and fragmentary and much more misleading than that into which Ricardo often glided with careless brevity, about the dependence of value on cost of production; but which he never regarded as more than a part of a larger doctrine, the rest of which he had tried to explain.

Jevons continues :—"We have only to trace out carefully the natural laws of variation of utility as depending upon the quantity of commodity in our possession, in order to arrive at a satisfactory theory of exchange, of which the ordinary laws of supply and demand are a necessary consequence...Labour is found often to determine value, but only in an indirect manner by varying the degree of utility of the commodity through an increase or limitation of the supply." As we shall presently see, the latter of these two statements had been made before in almost the same terms, loose and inaccurate as they are, by Ricardo and Mill; but they would not have accepted the former. For while they regarded the natural laws of variation of utility as too obvious to require detailed explanation, and while they admitted that cost of production could have no effect upon exchange value, if it could have none upon the amount which producers brought forward for sale; their doctrines imply that what is true of supply, is true *mutatis mutandis* of demand, and that the utility of a commodity could have no effect upon its exchange value, if it could have none on the amount which purchasers took off the market. Let us then turn to examine the chain of causation in which Jevons' central position is formulated in his second Edition, and compare it with the position taken up by Ricardo and Mill. He says (p. 179):—

"Cost of production determines supply.
Supply determines final degree of utility.
Final degree of utility determines value."

Now if this series of causations really existed, there could be no great harm in omitting the intermediate stages and saying that cost of production determines value. For if A is the cause of B which is the cause of C, then A is the cause of C. But in fact there is no such series.

A preliminary objection might be taken to the ambiguity of the terms "cost of production" and "supply"; which Jevons ought to have avoided, by the aid of that technical apparatus of semi-mathematical phrases, which was at his disposal, but not at Ricardo's. A graver objection lies against his third statement. For the price which the various purchasers in a market will pay for a thing, is determined not solely by the final degrees of its utility to them, but by these in conjunction with the amounts of purchasing power severally at their disposal. The exchange value of a thing is the same all over a market; but the final degrees of utility to which it corresponds are not equal at any two parts. Jevons supposed himself to be getting nearer the foundations of exchange value when in his account of the causes

which determine it, he substituted the phrase "final degree of utility," for phrases used by the older economists, such as "the price which consumers are only just willing to pay," phrases which in this treatise are condensed into "marginal demand price." When for instance describing (second Edition, p. 105) the settlement of exchange between "one trading body possessing only corn, and another possessing only beef," he makes his diagram represent "a person" as gaining a "utility" represented by one line and losing a "utility" represented by another. But that is not what really happens; a trading body is not "a person", it gives up things which represent equal purchasing power to all of its members, but very different utilities: the older method of speaking, though not perfectly accurate, appears to be nearer the truth than that which Jevons and some of his followers have endeavoured to substitute for it.

But the greatest objection of all to his formal statement of his central doctrine is that it does not represent supply price, demand price and amount produced (subject to certain other conditions) as mutually determining one another, but as determined one by another in a series. It is as though when three balls *A*, *B*, and *C* rest against one another in a bowl, instead of saying that the position of the three mutually determined one another under the action of gravity, he had said that *A* determines *B*, and *B* determines *C*. Some one else however with equal justice might say that *C* determines *B* and *B* determines *A*. And in reply to Jevons a catena rather less untrue than his can be made by inverting his order and saying:—

Utility determines the amount that has to be supplied,

The amount that has to be supplied determines cost of production,

Cost of production determines value,

because it determines the supply price which is required to make the producers keep to their work.

Let us then turn to Ricardo's doctrine which, though unsystematic and open to many objections, seems to be more philosophic in principle, and closer to the actual facts of life. He says, in the letter to Malthus already quoted:—"M. Say has not a correct notion of what is meant by value when he contends that a commodity is valuable in proportion to its utility. This would be true if buyers only regulated the value of commodities; then indeed we might expect that all men would be willing to give a price for things in proportion to the estimation in which they held them; but the fact appears to me to be that the buyers have the least in the world to do in regulating price; it is all done by the competition of the sellers, and, however really willing the buyers might be to give more for iron than for gold, they could not, because the supply would be regulated by cost of production... You say demand and supply regulates value [*sic*]; this I think is saying nothing, and for the reason I have given in the beginning of this letter: it is supply which regulates value,

and supply is itself controlled by comparative cost of production. Cost of production, in money, means the value of labour as well as of profits." (See pp. 173—6 of Mr Bonar's excellent edition of these letters.) And again in his next letter, "I do not dispute either the influence of demand on the price of corn or on the price of all other things: but supply follows close at its heels and soon takes the power of regulating price in his [*sic*] own hands, and in regulating it he is determined by cost of production."

These letters were not indeed published when Jevons wrote, but there are very similar statements in Ricardo's *Principles*. Mill also, when discussing the value of money (Book III. Ch. IX. § 3), speaks of "the law of demand and supply which is acknowledged to be applicable to all commodities, and which in the case of money as of most other things, is controlled but not set aside by the law of cost of production, since cost of production would have no effect on value if it could have none on supply." And again, when summing up his theory of value (Book III. Ch. XVI. § 1), he says: "From this it appears that demand and supply govern the fluctuations of prices in all cases, and the permanent values of all things of which the supply is determined by any agency other than that of free competition: but that, under the régime of free competition, things are, on the average, exchanged for each other at such values and sold for such prices as afford equal expectation of advantage to all classes of producers; which can only be when things exchange for one another in the ratio of their cost of production." And, on the next page, speaking of commodities which have a joint cost of production, he says "since cost of production here fails us we must resort to a law of value anterior to cost of production and more fundamental, the law of demand and supply."

Jevons (p. 215), referring to this last passage, speaks of "the fallacy involved in Mill's idea that he is reverting to *an anterior law of value*, the law of supply and demand, the fact being that in introducing the cost of production principle, he has never quitted the law of supply and demand at all. The cost of production is only one circumstance which governs supply and thus indirectly influences values."

The wording of the last part of this criticism is open to objection, but in substance it seems to contain an important truth. If it had been made in Mill's time he would probably have accepted it; and would have withdrawn the word "anterior" as not expressing his real meaning. The "cost of production principle" and the "final utility" principle are undoubtedly component parts of the one all-ruling law of supply and demand; each may be compared to one blade of a pair of scissors. When one blade is held still, and the cutting is effected by moving the other, we may say with careless brevity that the cutting is done by the second; but the statement is not one to be made formally, and defended deliberately. In like manner it may be

pardonable, but it is not strictly accurate to say that the fluctuations of market values, or the varying prices which the same rare book fetches, when sold and resold at Christie's auction room, are determined exclusively by demand. And in like manner again when Ricardo thought he had made it clear that he had in his mind the "natural" or normal values of those goods the production of which conforms approximately to the law of Constant Return, and said that value was determined by cost of production, his exposition was grievously at fault, though what he actually meant is true.

Perhaps Jevons' antagonism to Ricardo and Mill would have been less if he had not himself fallen into the habit of speaking of relations which really exist only between demand price and value as though they held between utility and value; and if he had emphasized as Cournot had done, and as the use of mathematical forms might have been expected to lead him to do, the fundamental symmetry of the relations in which demand and supply stand to value. At the time at which he wrote the demand side of the theory of value had been much neglected; and he (together with Prof. Carl Menger, Prof. Walras and others) did excellent service by calling attention to it and developing it. There are indeed few thinkers whose claims on our gratitude are as high and as various as those of Jevons: but that must not lead us to accept hastily his criticisms on his great predecessors. (See an article on Jevons' *Theory* by the present writer in the *Academy* for April 1, 1872.)

Somewhat similar attacks on Ricardo's theory of value have been made recently by several Continental writers. But it seemed right to select Jevons' attack for reply, because, in England at all events, it has attracted more attention than any other.

Finally reference may be made to the short account given above of Ricardo's general position in the history of economics (Book I. Ch. IV. § 6), and of the peculiarities in his treatment of the Law of Diminishing Return (Book IV. Ch. III. § 5).

BOOK VII.

VALUE,

OR

DISTRIBUTION AND EXCHANGE.

CHAPTER I.

PRELIMINARY SURVEY OF DISTRIBUTION AND EXCHANGE.

A position of normal equilibrium is one towards which economic forces are tending,

§ 1. WE have seen how the amount of a thing produced for sale in any market tends constantly to a position of equilibrium; and that this equilibrium amount is determined by the condition that the price at which a steady sale can be reckoned on (or, in other words, the normal demand price) for that amount, is equal to the price at which that amount can be steadily produced (or, in other words, its normal supply price). Time however is required to enable the causes, which determine normal supply price, to work themselves out, and, though in a less degree, those which determine normal demand price; and meanwhile there are constant changes in the general conditions and methods of production, in the course of trade, and in the habits of consumption. Consequently the position of normal equilibrium at any time is rather to be regarded as one towards which the forces of demand and supply at the time are tending, than as one which is ever actually attained.

but like the normal level of the sea it is not actually realized.

In the same way the surface of the sea is always tending towards a level, but never attains it. For before the effects of one disturbance have passed away, others have sprung up; the level towards which the surface is tending, changes in less time than is required for the waves and the eddies caused by the last wind or the last tidal movement to subside. The normal level of the sea is thus an imaginary state which never is attained; but which would be attained

if all the external forces acting on it were to cease their restless change, and to remain constant in magnitude and in direction for a long time together.

In this preliminary survey we may neglect disturbing causes.

In the last two Books we have considered the difficulties connected with the element of Time in their more general aspects; and later on we shall have to study them in greater detail; but for the present we may give our chief attention to another class of difficulties. The supply price of a commodity is the price required to cover its money cost or expenses of production. But whereas we have hitherto gone on the supposition that the undertaker of any industrial enterprise takes for granted the prices which he has to pay for any kind of labour and for the hire of capital, we have now to examine the causes which determine the prices paid for labour and the use of capital, and thus to deal with the problem of value as a whole.

Let us suppose an almost stationary state.

§ 2. Let us begin by taking a general survey of the causes that govern true Normal value, estimated for a period sufficiently long to enable the economic causes concerned to work out their chief normal effects. The easiest plan for presenting vividly to our minds this uninterrupted action of economic causes is to suppose an almost stationary state, in which there are for a long time no great new inventions nor any other important changes in the methods of production, or in the channels of trade; no great wars and not very much variation in the habits of consumption, or in social and industrial habits and institutions generally. In such a state business will pursue its even tenor from generation to generation, and the experience of the past will enable people to forecast the future with certainty, and to adapt their arrangements closely to it.

In the language of the older economists this would be expressed by saying that the general economic conditions of society remained stationary long enough to enable the effects of free competition to be fully developed. But it will be well to call attention once more to the fact that the phrase free competition is apt to mislead. Perfect competition requires a perfect knowledge of the state of the market; and though no great departure from the actual facts of life is involved

We do not assume perfect knowledge

in assuming this knowledge on the part of dealers when we are considering the course of business in Lombard Street, the Stock Exchange, or in a wholesale Produce Market; it would be an altogether unreasonable assumption to make when we are examining the causes that govern the supply of labour in any of the lower grades of industry. For if a man had sufficient ability to know everything about the market for his labour, he would have too much to remain long in a low grade. The older economists, in constant contact as they were with the actual facts of business life, must have known this well enough; but partly for brevity and simplicity, partly because the term "free competition" had become almost a catchword, partly because they had not sufficiently classified and conditioned their doctrines, they often seemed to imply that they did assume this perfect knowledge. It is therefore specially important to insist that we do not really need to assume the members of any industrial group to be endowed with more ability and forethought, or to be governed by motives other than those which are in fact normal to, and would be attributed by every well-informed person to, the members of that group, account being taken of the general conditions of time and place[1].

and freedom of competition,

but only the enterprise and business habits which are normal to each several rank of industry.

Thus we have no need to suppose that every one is governed solely by calculations of his own advantage, and is always keen and prompt to turn every opportunity to the best account. There may be a good deal of wayward and impulsive action; sordid and noble motives may mingle their threads together as they do in actual life. But there will be, as in fact there is in modern England, a constant tendency for each man to select such occupations for himself and his children as seem to him on the whole the most advantageous of those which are within the range of his resources, and of the efforts which he is able and willing to make in order to reach them. The tendency may act slowly, but it will be sure, and it will work constantly in the same direction; for the conditions of life remaining without great change, the same estimates of the relative advantages of different courses

We take man as he is, governed by many motives and impulses; but the tendency for each one to adopt that course which he thinks most advantageous will act constantly in one direction,

[1] Compare Book I. Ch. VI. and Ch. VII. § 1; and Book V. Ch. IV. §§ 1, 2, and 5.

will remain valid for long times together: its action may be delayed by the retarding influences of habit and custom, by limitations of knowledge and of enterprise, by casual accident and by the peculiarities of individual temper and character; but it will go on through all. The only forces which could offer it an effective and permanent resistance, would be those of "combinations", themselves the product of firm resolve and deliberate enterprise; and therefore strong for both good and evil. But assuming for the present that there are no such combinations, we may conclude that when a long period has passed under conditions free from great external change, the adaptive power of man will have adjusted fairly well the supply of every commodity, of every appliance for production, and of every kind of skill and training to the demand for it.

and in the absence of disturbances will gradually prevail.

The adjustment will not be perfect, any more than the surface of a viscous fluid, which has been left a long time undisturbed, will be absolutely level. But as that surface will have become sufficiently level for all practical purposes, and will have already settled down very nearly in the position which it would have assumed, if it had been left for an unlimited time under the same conditions, so it will be with regard to the adjustment of demand and supply. There may, for instance, be a few persons in one occupation who, if they had their time to go over again, would have chosen another; and those who are in it may be earning a little less than they could have got in another, that seems to be no more difficult and to have equal incidental advantages and disadvantages. But on the whole the earnings of every occupation will have reached about their normal level, account being taken of the conditions, physical and moral, social and industrial, of the district and time under investigation.

In supposing that the general economic conditions of the district in which the trade is carried on, are almost stationary, we have implicitly assumed that there is no great change in the trade relations between that district and others. It will simplify the case, though it is not strictly necessary for our argument, to consider the district or market to which we refer, as an "isolated" territory; and we

may leave for future account the influences that may be brought to bear on it by commerce with other markets, as well as local variations of value due to cost of transport between different parts of it.

The remainder of this chapter deals with the side of demand.

§ 3. Let us take first that side of the question which relates to the demand for the agents of production. The conditions which determine it, so far as we need consider them now, are simpler in their action than those which determine supply.

The common saying that in business everything finds its own level, implies the Law of Substitution.

In the first place there are certain relations between the demand prices for different kinds of labour and those for the use of material capital which are familiar to all business men. In common language it is said that "every thing tends to find its own level," that "most men earn just about what they are worth," that "if one man can earn twice as much as another, that shows that his work is worth twice as much," that "machinery will displace manual labour whenever it can do the work cheaper." These and other common sayings are but expressions of the fact that any one thing, that can be used for obtaining a given result (or, in other words, any one factor of production for it), will, as a rule, be substituted for another, whenever it will do the work more cheaply. Or, to state the matter more generally: "So far as the knowledge and business enterprise of the producers reach, they will in each case choose those factors of production which are best for their purpose. The sum of the supply prices of those factors which are used is, as a rule, less than the sum of the supply prices of any other set of factors which could be substituted for them. Whenever it appears to the producers that this is not the case, they will, as a rule, set to work to substitute the less expensive method[1]."

The Law further explained

This "Law of Substitution" is a broad statement of the general fact that, each factor of production is applied so far as it is more efficient in proportion to its expensiveness than any other; and the point at which its application for any purpose ceases, is decided by the fact that, up to that

[1] See Book v. Ch. III. § 3.

point, the work that it did was worth more than had to be paid for it; but that beyond that point the results got by it would be worth less than would have to be paid for it, either because those results are not specially wanted, or because they can be got at less expense by the use of other factors of production. The efficiency of each factor at the outer limit of its use for each several purpose, or in other words its marginal efficiency in production, will be directly proportionate to the price which has to be paid for it.

and illustrated.

Thus in building there are some purposes for which bricks would be used, even if they were much dearer relatively to wood than they are; and others for which wood would be used even if it were much dearer relatively to bricks than it is: but the applications of each material will be carried just so far that it would no longer be cheaper than the other relatively to the advantages gained by using it. Again, there are some kinds of field work for which horse-power is clearly more suitable than steam power, and *vice versa:* but we are now supposing that there have been no great recent improvements in horse or steam machinery, and that therefore the experience of the past has enabled farmers gradually to apply the Law of Substitution; and on this supposition the application of steam-power will have been pushed just so far that any further use of it in the place of horse-power would bring no net advantage. There may however remain a narrow margin in which they could be indifferently[1] applied; and on that margin the net efficiency of either will be proportionate to the net cost of applying it.

And in the same way with regard to the human agents of production. If there are two methods of obtaining the same result, one by skilled and the other by unskilled labour, that one will be adopted which is the more efficient in proportion to its cost. There will be a margin on which either will be indifferently applied, and on that margin the efficiency of each will be in proportion to its cost; or, in other words, the wages of skilled and unskilled labour will

[1] The term "indifference" seems to have been first applied to this use by Jevons.

bear to one another the same ratio that their efficiencies do at the margin of indifference.

Again, there will be a rivalry between hand-power and machine-power similar to that between two different kinds of hand-power or two different kinds of machine-power. Thus hand-power has the advantage for some operations, as, for instance, for weeding out valuable crops that have an irregular growth; horse-power in its turn has a clear advantage for weeding an ordinary turnip field; and the application of each of them will be pushed till any further use of it would bring no net advantage. On the margin of indifference as between hand-power and horse-power their prices must be proportionate to their efficiency; and thus the Law of Substitution will have established directly a relation between the wages of labour and the price that has to be paid for horse-power[1].

Explicit applications of this law to distribution were first made by von Thünen.

§ 4. If we neglected differences between the rates of labour, and regarded all labour as of one kind, or at least as all expressed in terms of a certain kind of labour of standard efficiency, we might look for the margin of indifference between the direct application of labour and that of material capital; and we might say shortly, to quote von Thünen's words, that "the efficiency of capital must be the measure of its earnings, since if the labour of capital were cheaper than that of men, the undertaker would dismiss some of his workmen, and in the opposite case he would increase their number[2]."

[1] It may perhaps not be superfluous to point out that, in speaking of the action of a scientific law, whether it be that of Diminishing Return, of Substitution, or any other, we are adopting, for convenience, a short and elliptical method of speaking. What we mean is not really the action of the Law, but the action of those forces the action of which is set forth in the Law. When, for instance, we say that the Law of Substitution is acting strongly, we mean that those forces, the action of which is set forth in the Law of Substitution, are acting strongly.

[2] *Der Isolirte Staat*, II. 1. p. 123. He goes on (*ib.* p. 124) to argue that therefore "the rate of interest is the element by which the relation of the efficiency of capital to that of human labour is expressed"; and finally, in words which have recently become famous, though he has gained but little credit for them, he says (p. 162): "Die Nutzung des zuletzt angelegten Kapitaltheilchens bestimmt die Höhe des Zinsfusses." He had already established (p. 96) the general law of Diminishing Return for successive doses of capital in any branch of production. His treatment of these and other great economic principles is inde-

Ricardo and his followers were familiar with its action, but did not sufficiently explain it.

Ricardo and the able business men who followed in his wake were perfectly familiar with the practical working of this Law of Substitution. But, perhaps for that very reason, they did not emphasize it, did not make clear the important position which it really holds in their doctrine of wages, and did not even trouble themselves to work out its more remote results. And consequently when the application of mathematical methods of expression to the theory of wages brought into prominence the symmetrical relations between the laws of demand for and those of supply of labour, it seemed to many persons that a great and substantive new discovery had been made. Some recent writers of great ability have even gone so far as to put forward various corollaries of the general Law of Substitution as new and complete theories of wages destined to supplant the results obtained by the older economists. But all these corollaries are really nothing more than partial explanations of the action of the forces that determine the demand for labour.

It contains a part, but only a small part, of the Law of Wages.

When we inquire what it is that determines the marginal efficiency of a factor of production, whether it be any kind of labour or material capital, we find that the solution requires a knowledge of the available supply of that factor, and, going a step further, of the causes that determine that supply. The nominal value of everything, whether it be a particular kind of labour or capital or anything else, rests, like the keystone of an arch, balanced in equilibrium between the contending pressures of its two opposing sides. The forces of demand press on the one side, those of supply on the other; and the older economists seem to have been rightly guided by their intuitions when they silently determined that the forces of supply were those the study of which

pendent of those fanciful and unreal assumptions as to the causes that determine the accumulation of capital, and as to the relations in which wages stand to the stock of capital, from which he deduces the quaint result that the Natural Rate of wages of labour is the geometric mean between the labourer's necessaries, and that share of the product which is due to his labour when aided by capital. By the Natural Rate he means the highest that can be sustained: if the labourer were to get more than this for a time, the supply of capital would, von Thünen argues, be so checked as to cause him in the long run to lose more than he gained.

was the more urgent and involved the greater difficulty. Nevertheless much harm was done by their undue neglect of the forces of demand. Very much has been gained in clearness, and some substantial additions to our knowledge have been made by the more careful and exact exposition of the action of these forces which is being adopted by the present generation of economists.

The statement that wages tend to equal the Net product of the worker's labour, is true,

§ 5. It may however be well, before passing to consider the side of Supply, to consider more carefully that application of the Law of Substitution to the theory of Distribution, on which so much stress has been laid by many recent writers. It is that free competition tends to make each man's wages equal to the *Net product* of his own labour, or (as is sometimes less accurately said) the *Discounted value* of the produce of his labour.

We may begin with the latter phrase. To interpret it at all, we must take a very simple case. Suppose that a thing is made by one kind of labour alone; that this labour does not require any appreciable amount of Superintendence, nor the aid of any capital except that which is advanced in the payment of wages. Suppose that this capital has been advanced gradually, some of it a short time, some a long time, but on the average about half-a-year before the thing is ready for sale. Let the rate of interest for six months, allowing for risk, be three per cent. Then if the thing can be sold for £103, its Discounted value half-a-year beforehand will be £100. And the competition of employers among themselves will tend to make the wages of those who made it equal to this Discounted value of £100.

when carefully interpreted,

But a case as simple as this never occurs in practice. The earnings of many different kinds of industry, one of which is almost always that of Superintendence and Management, enter into the expenses of production, and therefore into the price, of almost everything that is sold; and in order to deduce the earnings of one of these kinds of labour from the price of the product, we must find out not only the interest on the capital employed but also the earnings of the other kinds of industry, and deduct them all from the value of the produce raised. We cannot therefore speak with

BOOK V. CH. V. perfect accuracy if the Discounted value of the work of labour: but we may still speak of the Net produce of labour. The Net produce of a machine is the value of the work that it does after deductions have been made for expenses of working in among which are here included the Earnings of Management. And in like manner the Net product of a man's labour is the value of the produce which he takes part in producing after deducting all the other expenses of producing it. It is true that this statement is not, as some have thought, an independent theory of wages, but only a particular way of stating the familiar doctrine that the value of everything tends to be equal to its expenses of production. There is however no reason why we should not avail ourselves of it as a handy way of stating that doctrine for some purposes[1].

a useful for some purposes

The meaning illustrated

There is another method of getting at the Net produce of a man's labour. It cannot be applied practically to all cases: but it will help to give us clearer notions. It is to suppose that an employer is in doubt whether he has enough labour to turn his stock, machinery and other trade appliances to good account: and whether he could not, by hiring one more man, increase the production by more than the equivalent of his wages, without having to supply additional capital in any other way. A sheep farmer, for instance, may be in doubt whether his staff of shepherds is sufficient. He may find that if he hired an additional man, without making any other charge, so many more lambs will be kept alive, and the flocks generally so much better cared for, that he may expect to send to market twenty more sheep every year. This will require no extra plant on which interest has to be charged; and the man may

[1] Von Thünen had expressed the fact that wages tend to equal the Net produce resulting from the work of the labourer on the margin of employment, by saying (*Isolirte Staat*, II. i. p. 174) that "wages are equal to the extra produce which is raised by the last of the labourers employed in a large business." The condition that they should be employed in a *large* business is of course introduced in order that their work may be the final *small* increment in the production. He points out (p. 178) that the introduction of each additional labourer introduces *some* discontinuity into the development of any individual small business; but that on the average these discontinuities correct themselves. His argument is somewhat similar to that given above (Bk. v. Ch. iv. § 5) on a slightly different point.

be supposed to save the farmer himself just as much trouble in some ways as he gives in others, so that nothing has to be allowed for Earnings of Management. Then the Net produce of that shepherd's labour will be twenty sheep: if the farmer can hire him for the price of twenty sheep, he will decide to do so; otherwise not; the shepherd who is on the margin of not being employed—the *marginal* shepherd, as we may call him—adds to the total produce a Net value just equal to his own wages. And though the form may be different, the substance of the problem is the same in every other industry: the wages of every class of labour tends to be equal to the produce due to the additional labour of the marginal labourer of that class[1].

[1] Compare Book VI. Ch. V. § 3.

CHAPTER II.

PRELIMINARY SURVEY OF DISTRIBUTION AND EXCHANGE, CONTINUED.

The Physiocrats assumed, in accordance with the peculiar circumstances of their time and country, that wages were at their lowest possible level,

§ 1. THE simplest account of the causes which determine the supply of labour and capital is that given by the Physiocrats, and is based upon the peculiar circumstances of France in the latter half of last century. At that time the taxes, and other exactions levied from the French peasant were limited only by his ability to pay; and very few of the labouring classes were at any considerable distance from actual starvation. So the Physiocrats assumed for the sake of simplicity, that there was a natural law of population according to which the wages of labour were kept at starvation limit[1]. They did not suppose that this was true of the whole working population, but the exceptions were so few, that they thought that the general impression given by their assumption was true: somewhat in the same way as it is well to begin an account of the shape of the earth, by saying that it is an oblate spheroid, although a few mountains do project as much as a thousandth part of its radius beyond the general level.

and that much the same was

Again, they knew that the rate of interest in Europe had fallen during the five preceding centuries, in consequence of

[1] Comp. Turgot, *Sur la Formation et Distribution des Richesses*, § VI. "In every sort of occupation it must come to pass, and in fact it does come to pass, that the wages of the artisan are limited to that which is necessary to procure him a subsistence ... He gains nothing but his life (Il ne gagne que sa vie)."

the fact that "economy had in general prevailed over luxury[1]." But they were impressed very much by the sensitiveness of capital, and the quickness with which it evaded the oppressions of the tax-gatherer by retiring from his grasp; and they therefore concluded that there was no great violence in the supposition that if its profits were reduced below what they then were, capital would speedily be consumed or migrate. Accordingly they assumed, again for the sake of simplicity, that there was something like a natural, or necessary rate of profit, corresponding in some measure to the natural rate of wages; that if the current rate exceeded this necessary level, capital would grow rapidly till by its competition it forced down the rate of profit to that level; and that if the current rate went below that level capital would shrink quickly, and the rate would be forced upwards again.

true of the interest on Capital.

Wages and profits being thus fixed by natural laws, the natural value of everything was determined simply as the sum of wages and profits required to remunerate the producers[2].

Adam Smith worked out this conclusion more fully than the Physiocrats did; though it was left for Ricardo to make clear that the labour and capital needed for production must be estimated at the margin of cultivation, so as to avoid the element of rent. But Adam Smith saw also that labour and capital were not at the verge of starvation in England, as they were in France. In England the wages of a great part of the working classes were sufficient to allow much more than the mere necessaries of existence; and capital had too

These rigid assumptions were partially relaxed by Adam Smith,

[1] Turgot, *ib.* § LXXX. His position was, however, not altogether consistent, as is well shown by Prof. Böhm-Bawerk, *Kapitalzinstheorien*, Vol. I. Ch. IV.

[2] From these premisses the Physiocrats logically deduced the conclusion that the only net produce of the country disposable for the purposes of taxation is the rent of land; that when taxes are placed on capital or labour, they make it shrink till its net price rises to the natural level. The landowners have, they argued, to pay a gross price which exceeds this net price by the taxes together with all the expenses of collecting them in detail, and an equivalent for all the impediments which the tax-gatherer puts in the way of the free course of industry; and therefore the landowners would lose less in the long run if, being the owners of the only true surplus that exists, they would undertake to pay direct whatever taxes the King required; especially if the King would consent to "laisser faire, laisser passer," that is, to let every one make whatever he chose, and take his labour and send his goods to whatever market he liked.

rich and safe a field of employment there to be likely to go out of existence, or to emigrate. So when he is carefully weighing his words, his use of the terms "the natural rate of wages," and "the natural rate of profit," has not that sharp definition and fixedness which it had in the mouths of the Physiocrats; and he goes a good way towards explaining how they are determined by the ever-fluctuating conditions of demand and supply. He even insists that the liberal reward of labour "increases the industry of the common people"; that "a plentiful subsistence increases the bodily strength of the labourer; and the comfortable hope of bettering his condition, and of ending his days perhaps in ease and plenty, animates him to exert that strength to the utmost. Where wages are high, accordingly, we shall always find the workman more active, diligent and expeditious, than where they are low; in England, for example, than in Scotland; in the neighbourhood of great towns than in remote country places[1]." And yet he sometimes fell back into the old way of speaking, and thus caused careless readers to suppose that he believed, the mean level of the wages of labour to be fixed by an iron law at the bare necessaries of life.

and by Malthus,

Malthus again, in his admirable survey of the course of wages in England from the thirteenth to the eighteenth centuries, showed how their mean level oscillated from century to century, falling sometimes down to about half a peck of corn a day, and rising sometimes up to a peck and a half or even, in the fifteenth century, to about two pecks: a height beyond which they have never passed except in our own day. But although he observed that "an inferior mode of living may be a cause as well as a consequence of poverty," he traced this effect almost exclusively to the consequent increase of numbers; he did not anticipate the stress which economists of our own generation lay on the influence which habits of living exercise on the efficiency, and therefore on the earning power of the labourer[2].

[1] *Wealth of Nations*, Bk. I. Ch. VIII.

[2] See his *Political Economy*, Ch. IV. § 2.

Ricardo was more unguarded in his language, but there is no good cause for attributing to him a belief in the so-called "iron law of wages."

Ricardo's language was even more unguarded than that of Adam Smith and Malthus. It is true, indeed, that he said distinctly[1]:—"It is not to be understood that the natural price of labour estimated in food and necessaries is absolutely fixed and constant....It essentially depends on the habits and customs of the people." But, having said this once, he did not take the trouble to repeat it constantly; and most of his readers forgot that he ever said it. In the course of his argument he frequently adopted a mode of speaking similar to that of the Physiocrats; and seemed to imply that the tendency of population to increase rapidly as soon as wages rise above the bare necessaries of life, causes wages to be fixed by "a natural law" to the level of these bare necessaries. This law has been called, especially in Germany, Ricardo's "iron" or "brazen" law: many German Socialists believe that this law is in operation now, and will continue to be so, as long as the plan on which production is organized remains "capitalistic" or "individualistic"; and they claim Ricardo as an authority on their side: while many German economists, who are not Socialists, and who protest that no such law exists, yet maintain that the doctrines of Ricardo and his followers stand or fall with the truth of this law.

In fact, however, Ricardo was not only aware that the necessary or natural limit of wages was fixed by no iron law, but is determined by the local conditions and habits of each place and time: he was further keenly sensitive to the importance of a higher "standard of living," and called on the friends of humanity to exert themselves to encourage the growth of a resolve among the working classes not to allow their wages to fall anywhere near the bare necessaries of life[2].

[1] *Principles*, Ch. v.

[2] It may be well to quote his words. "The friends of humanity cannot but wish that in all countries the labouring classes should have a taste for comforts and enjoyments, and that they should be stimulated by all legal means in their exertions to procure them. There cannot be a better security against a superabundant population. In those countries, where the labouring classes have the fewest wants, and are contented with the cheapest food, the people are exposed to the greatest vicissitudes and miseries. They have no place of refuge from calamity; they cannot seek safety in a lower station; they are already so low,

The persistency with which many writers continue to attribute to him a belief in the "iron law" can be accounted for only by his delight "in imagining strong cases," and his habit of not repeating a hint, which he had once given, that he was omitting for the sake of simplicity the conditions and limitations that were needed to make his results applicable to real life[1].

Mill also insisted on the progressive deterioration caused by unduly low wages.

Mill did not make any great advance in the theory of wages beyond his predecessors, in spite of the care with which he set himself to emphasize the distinctly human element in economics. He, however, followed Malthus in dwelling on those lessons of history which show that, if a fall of wages caused the labouring classes to lower their standard of comfort "the injury done to them will be permanent, and their deteriorated condition will become a new minimum tending to perpetuate itself as the more ample minimum did before[2]."

But our own generation is the first to study carefully the influence of wages on efficiency.

But it is only in our own generation that a careful study has begun to be made of the effects that high wages have in increasing the efficiency not only of those who receive them, but also of their children and grand-children. In this matter the lead has been taken by General Walker and other American economists; and the application of the compara-

that they can fall no lower. On any deficiency of the chief article of their subsistence, there are few substitutes of which they can avail themselves, and dearth to them is attended with almost all the evils of famine." (*Principles*, Ch. v.)

It is noteworthy that McCulloch, who is regarded, not altogether unjustly, as having adopted the extremest tenets of Ricardo, and as having applied them harshly and rigidly, yet devotes a chapter of his treatise *On Wages* to setting forth the disadvantages which a country suffers from low wages.

[1] This habit of Ricardo's has already been discussed in the Note at the end of the last Chapter. Prof. Brentano, in his inaugural address at Vienna, gives as a reason for believing that the English classical economists really held the iron law of wages, the fact that they frequently speak of the minimum of wages as depending on the price of corn. But the term "corn," as used by them, was short for "agricultural food products of all kinds." It thus included the product of pasture no less than of arable land; it included meat and milk, fruit and vegetables, just as much as wheat and barley.

[2] Book II. Ch. XI. § 2. He had just complained that Ricardo supposed the standard of comfort to be invariable. He was aware that Ricardo's "minimum rate of wages" depended on the prevalent Standard of Comfort, and had no connection with the bare necessaries of life; but even he seems to have overlooked passages such as that quoted in the last note but one, in which Ricardo treats that standard as variable and expresses an earnest desire that it should be raised.

tive method of study to the industrial problem of different countries of the Old and New Worlds is forcing constantly more and more attention to the fact that highly paid labour is generally efficient and therefore not dear labour, a fact which, though it is more full of hope for the future of the human race than any other that is known to us, will be found to exercise a very complicating influence on the theory of Distribution.

After this brief introduction we may proceed to consider the important problem of the general relations in which the demand for and supply of labour stand to the demand for and supply of commodities. We are to confine our attention to a country in which there is no rapid change in the methods of production, and no disturbance resulting from foreign trade. But the problem, even when thus simplified, contains many elements, all of which have to be kept in view at the same time; and therefore the remainder of the chapter will impose a severe strain on the attention of the reader.

Let us modify the assumptions of the Physiocrats by supposing that each grade of labour has its own standard of comfort, which is rigidly fixed.

§ 2. Let us then revert to the position in which the theory of value was left by the Physiocrats. Their argument takes no account of the existence of more than one grade of labour; but it will lose little of its simplicity and clearness of outline if we suppose that society is divided into a number of horizontal grades[1], each of which is recruited from the children of its own members; and each of which has its own standard of comfort, and increases in numbers rapidly when the earnings to be got in it rise above, and shrinks rapidly when they fall below that standard. Let us suppose, then, that parents can bring up their children to any trade in their own grade, but cannot easily raise them above it and will not consent to sink them below it. And let us continue to suppose that changes in the methods of production and in the relative proportions of its various branches are not very rapid; so that the supply of the various factors of production required in any trade, whether they be human agents or material appliances, can always be adjusted pretty closely to the demand for them.

[1] See Book IV. Ch. VI. §§ 7 and 8.

Then the conditions of supply will give the rates of payment for the services of each kind of labour

On these suppositions the normal wage in any trade is that which is sufficient to enable a labourer, who has normal regularity of employment, to support himself and a family of normal size according to the standard of comfort that is normal in the grade to which his trade belongs; it is not dependent on demand except to this extent, that if there were no demand for the labour of the trade at that wage the trade would not exist. In other words the normal wage represents the expenses of production of the labour according to the ruling standard of comfort, and is a fixed quantity so long as that standard is fixed; the influence of demand is only to determine the number of those who are brought into the trade, and not their rate of wages.

and for the use of capital;

Let us retain for the present the assumption made by the Physiocrats that there is a natural rate of interest to which the supply of capital steadily and quickly adjusts itself, increasing rapidly whenever the rate of interest is above this level and shrinking again whenever it falls below this level.

while the strength of demand will determine the amounts of these several agents for which there is employment at these rates.

The tendency of every one to select the best means for attaining his own ends (or, in more technical phrase, the operation of the Law of Substitution), acting gradually but constantly under almost stationary conditions would then have caused each several kind of labour or machinery, or other agent of production to be used for each several purpose until its further use there was no longer remunerative; each branch of production would have been extended until it so far satiated the wants which it was directed to meet, that no further supply of its products would be sold on such terms as to pay their expenses of production; and meanwhile the employment of each several agent in each branch of production would have been extended until full advantage had been taken of its special fitness for the work; its use would cease only when there remained nothing that could be done by it better or more cheaply than by other means.

These three elements, firstly the amount produced, secondly, the marginal utility all along the various uses of the agent, represented by the marginal demand price, and thirdly, the

marginal expenses of production, would mutually determine one another[1].

§ 3. In the last section we assumed that the supply of each of these agents of production conformed itself to the demand by increasing rapidly when the price to be got for it was above a certain fixed level, and shrinking rapidly when the price was below that level. But now let us assume that this level is not fixed, but depends on the amount demanded; (or, in more technical language, that it has a supply schedule of the same character as those for particular commodities, with which we are already familiar). On this assumption, as on those of the last section, the limit or "margin" at which the use of any one of these agents of production terminates, and the aid of another is substituted for it in any branch of production, is found where the relative efficiencies of these two agents are proportionate to their relative costs.

Next suppose that the supply price is not rigidly fixed, but that there is a definite relation between the amount required of each of these agents and the price at which it will be supplied,

Again, we suppose that we know the whole amount of each agent of production for which there is a demand at each particular price (or, in other words, that there is a demand schedule for it). As before, this amount is the aggregate of the several amounts that are demanded at that price for each trade in which the agent is used. The demand for it in each trade is directly dependent upon, and derived from, the demand for the commodities made by the trade; and this in its turn is determined by the eagerness of purchasers for those commodities and the amount of purchasing power at their disposal. And, as before, the tendency of every one to select the best means of attaining his own ends (or, in other words, the action of the Law of Substitution), limits the use of each agent to those

[1] As we have seen (Book VI. Ch. V. § 3) producers will not proceed all by the same route. One farmer will use more chemical manures, and another will give more care to his farmyard manures; one manufacturer will apply machinery wherever he can do so with a fair prospect of success, and another only when its use is certain to be advantageous. And therefore the boundary of the profitable application of capital and labour in making a thing is not to be regarded as a point on any one fixed route, but as a line of irregular shape cutting one after another every possible route by which producers can proceed.

purposes for which it was at least as efficient as any other, in proportion to the price that had to be paid for it[1].

then the amounts and prices of the several agents of production mutually determine one another.

The production of every commodity is carried forward up to that limit or margin at which there is equilibrium between the forces of demand and supply; that is, the limit at which any further production would bring in less than a remunerative price[2]. The position of the margin is the index of this equilibrium; and taken in conjunction with other facts, it indicates, but does not determine, the prices of the commodities made on it, and the prices paid for the labour and the use of the capital employed in making the commodity; just as the finger of the barometer is an index of the position of equilibrium between the pressure of the air and the mercury. The amount of the commodity and its price, the amounts of the several factors or agents of production used in making it, and their prices—all these elements mutually determine one another, and if an external cause should alter any one of them the effect of the disturbance extends to all the others.

Parallel instances from physics.

Just in the same way, when several balls are lying in a bowl, they mutually determine one another's positions; and again when a heavy weight is suspended by several elastic strings of different strengths and lengths attached to different points in the ceiling, the equilibrium positions of all the strings and of the weight mutually determine one another. If any one of the strings that is already stretched is shortened, everything else will change its position, and the length and the tension of every other string will be altered also.

[1] The whole of Book v. Ch. vi. bears closely upon the central problem of Distribution and Exchange. The attention of mathematicians may also be directed to Note xx. in the Appendix, in which all the various cases discussed in that chapter are combined.

[2] We must not forget that every factor is used in each branch of production up to the margin of indifference on each several plan on which the production can with advantage be carried on; and thus this margin is not a point on any one route which that branch of production can follow, but a line intersecting all such routes.

Again, it must be remembered that the margin of profitable production of those goods which obey the law of Increasing Return is liable to be unstable: that in practice it is much dependent on the tendency of firms which have grown large to lose part of the energy and progressiveness by which they first made their way: and that this tendency is liable to great changes in character from one generation to another. See Book IV. Ch. XII., XIII.; Book V. Ch. IV., V.

CHAPTER III.

PRELIMINARY SURVEY OF DISTRIBUTION AND EXCHANGE, CONTINUED.

§ 1. WE have seen that the limit or margin of the profitable application of labour and capital in any branch of production, indicates but does not determine, the equilibrium rates of the earnings and interest of that labour and capital; the amounts of labour and capital applied, the prices paid for their use, and the price of the commodity produced by them mutually determine one another.

But while earnings and interest are among the elements that mutually determine one another, rent is not: it is determined by the others.

But here we have to call in mind a fundamental difference between earnings and interest on the one hand, and rent on the other. For rent is not one of these mutually determining elements, but is determined by them: the rent or Producer's Surplus of a differential advantage, not made by man, is the excess value of the return which can be got by its aid where labour and capital are applied with normal ability[1] up to the margin of profitableness over that which the same labour, capital and ability would get if working without the aid of any such advantage.

Thus the central problem of Distribution and Exchange is concerned with the determination of earnings and interest and the values of commodities. These being known, and the resources of nature and the arts of production being given, the data are supplied from which the Producer's Surplus afforded by any differential advantage can be calculated by a mere arithmetical process: though it still remains for "particular human institutions," to use Mill's phrase, to determine whether this surplus shall become private property; and if so, whether it shall be held in single or joint

[1] See Book v. Ch. iv. § 5.

ownership, and whether the title to it shall be absolute or subject to special conditions.

The aggregate Net product of the agents of production is the *National Dividend.*

§ 2. The labour and capital of the country, acting on its natural resources, produce annually a certain Net aggregate of commodities, material and immaterial, including services of all kinds[1]. This is the true net annual revenue of the country, or as we may say the NATIONAL DIVIDEND. It is of course unimportant whether we estimate it for a year or for any other period; the important point is that it is a continuous stream always flowing, and not a reservoir or store, or in the narrower sense of the word a "Fund" of capital[2].

The significance of the term *Net.*

The word *Net* indicates that the aggregate of commodities produced during the year is estimated so as to allow for the replacement of raw material consumed during the year and for the wear and tear of machinery. But no corresponding reduction is made for the wear and tear of human agents of production; because the earnings of labour are commonly estimated *gross*, that is, without any allowance for the ageing and exhaustion of the worker.

Further explanations.

It is not to be understood that the share of the National Dividend, which any particular industrial class receives during the year, contains only things that were made during the year. On the contrary, most of the things made, or partly made, during the year are likely to remain in the possession of capitalists and undertakers of industry; while in return they, directly or indirectly, hand over to the working classes some things that had been made in previous years.

The sense in which it is true that the earnings of labour depend on advances made by capital.

The ordinary bargain between labour and capital is that the wage-receiver gets command over commodities in a form ready for immediate consumption, and in exchange carries his employer's goods a stage further towards being ready for immediate consumption. But while this is true of most employés, it is not true of those who finish the processes of production. For instance, those who put together and finish watches, give to their employers far more commodities in a form ready for immediate consumption, than they take from

[1] See Book II. Ch. II. and VI.

[2] In Prof. Newcomb's words it is a *Flow* and not a Fund. (See his *Political Economy*, Book IV. Ch. I.)

them. And if we take one season of the year with another, so as to allow for seed and harvest time, we find that workmen as a whole hand over to their employers more finished commodities than they receive as wages. But—to say nothing of machinery and factories, of ships and railroads—the houses loaned to workmen, and even the raw materials in various stages which will be worked up into commodities consumed by them, represent a far greater provision of capital for their use than the equivalent of the advances which they make to the capitalist even, when they work for a month for him before getting any wages. And in this sense we are justified in saying that the earnings of labour depend upon advances made to labour by capital[1].

The National Dividend is the sole source of demand for all the agents of production.

The Net aggregate of all the commodities produced is itself the true source from which flow the demand prices for all these commodities, and therefore for the agents of production used in making them. Or, to put the same thing in another way, this National Dividend is at once the aggregate Net product of, and the sole source of payment for, all the agents of production within the country: it is divided up into Earnings of labour, Interest of capital, and lastly the Producer's Surplus, or Rent, of land and of other differential advantages for production. It constitutes the whole of them and the whole of it is distributed among them; and the larger it is, the larger, other things being equal, will be the share of each agent of production[2].

[1] See the remarks, in the Note at the end of the chapter, on the proposition that "Industry is limited by capital."

[2] It is to be understood that the excess of Profits over Interest is here provisionally reckoned among Earnings, subject to a stricter analysis at a later stage. Also that Earnings, Interest and Rent are interpreted broadly, so as to include all those commodities which a person provides for himself by his own labour or derives from the Usance of his own wealth (comp. Book II. Ch. VI.). It would indeed be more consistent with precedent tacitly to omit these commodities from both sides of the account; but unless that is done thoroughly and consistently—and it is apt not to be—it leads to grave inaccuracies.

Speaking broadly, taxes may be regarded as those parts of the National Dividend which the community elects to devote to the expenses of Government; the share of taxes which the merchant pays may be regarded as coming out of his profits, those which the working-man pays as coming out of his wages; and so on. There are, however, some cases in which it is convenient to regard taxes as a distinct share of the Dividend; and to regard the other shares as modified accordingly.

We may suppose that share of the National Dividend which goes as rent to

An increase in the supply of any agent will lower, other things being equal, its price;

§ 3. Other things being equal, the larger the supply of any agent of production, the further will it have to push its way into uses for which it is not specially fitted, the lower will be the demand price with which it will have to be contented in those uses in which its employment is on the verge or margin of not being found profitable; and in so far as competition equalizes the price which it gets in all uses, this price will be its price for all uses. The extra production resulting from the increase in that agent of production will go to swell the National Dividend and other agents of production will benefit thereby: but that agent itself will have to submit to a lower rate of pay.

to the general benefit of other agents,

but not necessarily of all.

For instance, if without any other change, capital increases fast, the rate of interest must fall; if without any other change the number of those ready to do any kind of labour increases their wages must fall. In either case there will result an increased production, and an increased National Dividend: in either case the loss of one agent of production must result in a gain to others; but not necessarily to all others. Thus the opening up of rich quarries of slate or the increase in numbers or efficiency of quarrymen, or any other cause that lowered the supply-prices for slates,

be set on one side; and then there remains what would be produced by labour and capital if they were all applied under conditions no more favourable than those under which they are applied at the margin of profitable employment; and a proposal was made in the *Economics of Industry* (Book II. Ch. IV.) that this should be called the *Wages-and-Profits-Fund*, or the *Earnings-and-Interest-Fund*. These terms were suggested in order to emphasize the opinion that the so-called "Wages-Fund Theory" (see Note at the end of this chapter), however it might be purified from the vulgar errors which had grown up around it, still erred in suggesting that earnings and interest (or wages and profits) do not stand in the same relation to the National Dividend. For although nearly everything that is true and important in the Wages-Fund Theory, *as applied to normal wages*, remains true if throughout Profits are written for Wages, and Wages for Profits, yet the title of the theory, as well as the way in which it was applied, appeared to obscure this fundamental symmetry. It seemed therefore worth while to adopt a new catch-word which should emphasize this symmetry.

Experience has however shown that the term "Earnings and Interest Fund" is apt to be misunderstood. For, firstly, a Fund suggests the notion of a reservoir of stored-up wealth, and not a stream, or flow, of new production: and, secondly, the proposal to put rent aside while we are considering how earnings and interest are determined, has been found to suggest that rent is determined first and then takes part in determining earnings and interest; and this is, of course, the opposite of what really occurs.

would tend to improve the houses of all classes; and it would tend to increase the demand, and raise the demand-price for bricklayers' and carpenters' labour; but it would be likely to injure the makers of roofing tiles as producers of building materials, more than it benefitted them as consumers.

But the influence of improvements must be discussed later.

We are, however, now touching on an inquiry as to the effects on Distribution and Exchange which result from economic progress: and we cannot pursue that with advantage till we have made a closer study of those points in which the application of the laws of demand and supply to labour, to capital, and to land differ from their application to ordinary commodities.

We may end this Preliminary Survey by an illustrative instance.

§ 4. Before proceeding to that task however it may be well to give an illustration of the general results that we have reached in this Preliminary Survey; and for this purpose we may make use of a convenient phrase already suggested. We have seen[1] that an important doctrine in the theory of Exchange, viz. that the value of a thing tends to equal its expenses of production, may be rewritten so as to express a part of the theory of Distribution, viz. that the earnings of a worker tend to be equal to the Net produce of his work.

The scientific use of partial or incomplete statements.

It is true that this phrase by itself has no real meaning; since in order to interpret the term "Net produce," we have to take for granted all the expenses of production of the commodity on which he works, other than his own wages. But it is always a difficult task to hold in mind at one and the same time all the actions and reactions of a great number of causes which mutually determine one another. And although the able business man acquires a sort of instinct that enables him to do it as regards his own affairs; while much of the higher training of science is devoted to acquiring a more general power of the kind; yet everyone finds his task lightened, when he is able to break up a difficult problem, and to take one part of it at a time; and the strain necessarily involved by the problem of Distribution and Exchange, is so great that we should avail ourselves of every aid.

[1] Book VII. Ch. I. § 5.

Wages of a worker expressed provisionally in terms of the Net products of workers in the same grade

Following this plan then we may say that, since the wages of any worker, say for instance a shoemaker, tend to be equal to the Net product of his labour: and since the wages of all workers in the same grade tend to be equal to one another: therefore *in a state of perfect economic equilibrium* every worker will be able with the earnings of a hundred days' labour to buy the Net products of a hundred days' labour of other workers in the same grade with himself, selecting them in whatever way he chooses, so as to make up that aggregate sum.

or of other grades.

If the normal earnings of workers in another grade were half as high again as his own, the shoemaker would have to spend three days' wages in order to get the Net product of two days' labour of a worker belonging to that grade; and so in proportion.

The dependence of wages on the efficiency of labour.

Thus, other things being equal, every increase in the Net efficiency of labour in any trade, including his own, will raise in the same proportion the real value of that part of his wages which the shoemaker spends on the products of that trade; and other things being equal, the equilibrium level of the real wages of the shoemaker depends directly on, and varies directly with, the average increase in the efficiency of the trades, including his own, which produce those things on which he spends his wages[1]. Conversely, if any trade rejects an improvement by which its efficiency could be increased ten per cent., it inflicts on the shoemaker an injury measured by ten per cent. of that part of his wages which he spends on the products of that trade.

The relations between grades. An increased supply of business ability raises the wages of manual labour

Again the shoemaker will gain by anything that changes the relative positions of different grades in such a way as to raise his grade relatively to others. In particular, if those grades which are occupied chiefly with the tasks of managing businesses whether manufacturing, trading or any other, should receive so great an influx from other grades, that the Earnings of Management are lowered permanently relatively to the earnings of manual work, there will be a rise in the

[1] This neglects the fact that their consumption would probably be increased by a fall in the price of the product. To take account of that we ought to estimate the loss of Consumers' Rent on the plan adopted in Book v. Ch. VII.

Net product of every kind of manual labour; and, other things being equal, the shoemaker will get more of every commodity on which he spends those wages that represent his own Net product.

and so does an increase of capital ultimately.

The same is true of an increase in the accumulations of capital, which causes a fall in the rate of interest. It will diminish the amount that has to be deducted from the gross product of the shoemaker's work, in order to find the Net product: it will thus increase the Net product of his work, and indeed that of workers in all other grades. It will increase the purchasing power of a week's wages to him whether he spends them on the product of his own trade or any other.

But its immediate effect may be to put certain kinds of manual labour at a disadvantage.

§ 5. But it must be noticed that we have just been speaking of the ultimate effect of a fall in the rate of interest and that its immediate effect may be different. For a fall in the rate of interest always gives an advantage to roundabout methods of production over direct methods. If the manufacturer finds that he can borrow money to buy machinery at a low rate of interest, he will substitute machine-work for hand-work in operations for which he would have retained hand-work if he had had to pay a higher rate[1]. In other words more of his outlay will take the form of payments for the work of engineers (as well as for the sacrifices of those who "wait" for the enjoyments over which they have obtained command, and who thus accumulate capital). There will, therefore, be an increased demand for engineers' work, and a diminished demand for shoemakers' work; and for a time engineers' wages are likely to be above, and shoemakers' wages below their normal level. But this inequality will at once bring into action forces tending to redress itself. More parents will bring up their children to the engineers' trade and less to the shoemakers' trade; and when equilibrium has again been reached, the wages of shoemakers will again stand to those of engineers in about the same proportions as the difficulties of their several tasks. The shoemakers, in common with all others, will then gain the benefit of a diminished rate of charge for the capital that is used in

[1] We may again refer to Book VI. Ch. V. § 3.

making the shoes and the other things which they consume[1].

Shoemakers may be temporarily injured by improvements in machinery that can supplant hand work;

Again, an improvement in shoemaking machinery, which makes it more efficient or less costly, will tend to cause it to supplant hand-work, just in the same way as a fall in the rate of interest does. It will benefit all trades, in so far as they are consumers of shoes; and it will benefit engineers for a time by causing an increased demand for their labour, just as a fall in the rate of interest would; but the shoemakers will suffer for a time at least, as we saw they would in the last case. On the other hand, an improvement in the machinery which makes such parts of shoes as are seldom or never made by hand, will lower the supply-price of shoes, and will cause an increased demand for them, and therefore for the work of shoemakers. And they will therefore temporarily gain by the change an even greater increase in the demand for their labour than the engineers do; while as consumers of shoes they will get their small share in the general gain that results from the greater ease with which shoes are produced.

but they gain by improvements in machinery that assists hand work, and by a cheapening of leather.

A similar effect to this last would be caused by larger and cheaper supplies of leather such as would result from the opening up of improved means of communication with new countries. And this illustrates the general truth that, since England, with her large population and small territory, has to buy much food and raw material from abroad, a very large part of the services on which the English working classes spend their wages, are those of sailors and railway-

[1] This is indeed subject to one correction. It might happen that the task of sewing boots and shoes was specially adapted to the character of a limited number of each generation of workers. Those who had a natural aptitude and liking for such careful monotonous sedentary work, might find that the shoemaking and a few similar trades offered a field of employment in which they were at a greater advantage, or a less disadvantage, relatively to other workers, than in any other trades. In that case the shrinkage of this field of employment, resulting from a large use of shoemaking machinery, might have caused this field to be permanently overcrowded, and might have permanently lowered the normal wages of workers with this particular cast of faculties, relatively to other workers. And, in so far as the grade to which any occupation belongs depends on the rarity of the natural faculties required in it, relatively to the aggregate demand for those faculties, the work of sewing shoes would have been put down to a somewhat lower grade than that in which it would have found its place had there been no machinery.

men, of shipbuilders and makers of steel rails, and of those who have supplied the capital by which the ships, railways, &c. have been made. Improvements in transport, quite as much as improvements in manufacture, have increased the amount of the necessaries, comforts and luxuries of life which make up that aggregate of the Net products of a hundred days' labour of other workers in his own grade (or of workers in other grades in due proportion) which the English shoemaker or other worker can buy with the wages of a hundred days' of his own labour.

NOTE ON THE WAGES-FUND THEORY, AND ON TWO OF MILL'S FUNDAMENTAL PROPOSITIONS ON CAPITAL.

THE question whether this so-called Wages-Fund Theory is true or false is in a great measure a question of words. For it has many forms, some of which are vague and incomplete, rather than untrue statements of those general relations of capital and labour in the problem of Distribution, which are discussed in the present Book. But it has also a vulgar form which derives its origin from some careless phrases that Adam Smith and Ricardo used when wishing to lay stress on the importance to the labourer of those stores of wealth by which he is supported while producing further wealth. In this vulgar form it asserts that the amount of wages which could and would be paid in a country in, say, a year, is fixed absolutely by the amount of capital existing there at the time; so that if wages were forced up in any one trade, other wage receivers must lose a sum exactly equal in the aggregate to the gain of that trade. In this form it is inconsistent with the general tenor of Adam Smith's and Ricardo's reasonings; and, though the point is not free from doubt, it seems never to have been unconditionally accepted by any of their chief followers, nor did it find acceptance in Germany or France. But many of the popular expositors of economics gave the theory in this form as the chief teaching of the science on the subject of wages; and unfortunately the position of those popular expositors was strengthened by a passage in the Chapter on Wages in J. S. Mill's *Principles of Political Economy*. This also was the form in which it was used by some capitalists, who were anxious to prevent the working classes from endeavouring to get higher wages by strikes, or otherwise; and who were glad to be able to quote the authority of Political Economy on their side; and in this form it is certainly false.

It has already been noticed (Book I. Ch. IV. § 7) that Mill in his later years under the combined influence of Comte, of the Socialists,

and of the general tendencies of public sentiment, set himself to bring into prominence the human, as opposed to the mechanical, element in economics. He desired to call attention to the influences which are exerted on human conduct by custom and usage, by the ever shifting arrangements of society, and by the constant changes in human nature; the pliability of which he agreed with Comte in thinking that the earlier economists had underrated. It was this desire which gave the chief impulse to his economic work in the latter half of his life; and which induced him to separate Distribution from Exchange, and to argue that the laws of Distribution are dependent on "particular human institutions," and liable to be perpetually modified as man's habits of feeling, and thought, and action pass from one phase to another. He thus contrasted the laws of Distribution with those of Production, which he regarded as resting on the immutable basis of physical Nature; and again with the laws of Exchange to which he attributed something very much like the universality of Mathematics. It is true that he sometimes spoke as though Political Economy consisted chiefly of discussions of the Production and Distribution of wealth, and thus seemed to imply that he regarded the theory of Exchange as a part of the theory of Distribution. But yet he kept the two separate from one another; he treated of Distribution in his second and fourth Books, and gave his third Book to the "Machinery of Exchange" (compare his *Principles of Political Economy*, Book II. Ch. I. § 1, and Ch. XVI. § 6).

In doing this he allowed his zeal for giving a more human tone to economics to get the better of his judgment, and to hurry him on to work with an incomplete analysis. For, by putting his main theory of wages before his account of supply and demand, he cut himself off from all chance of treating that theory in a satisfactory way; and in fact he was led on to say (*Principles*, Book II. Ch. XI. § 1), that "Wages depend mainly upon...the proportion between population and capital;" or rather, as he explains later on, between "the number of the labouring class...who work for hire," and "the aggregate of what may be called the Wages-Fund which consists of that part of circulating capital...which is expended in the direct hire of labour."

The fact is that the theories of Distribution and Exchange are so intimately connected as to be little more than two sides of the same problem; that in each of them there is an element of "mechanical" precision and universality, and that in each of them there is an element, dependent on "particular human institutions," which has varied, and which probably will vary, from place to place and from age to age. And if Mill had recognised this great truth, he would not have been drawn on to substitute, as he did, the statement of the problem of wages for its solution: and he would have treated the whole problem from the beginning on those sound lines of reasoning, which he followed when he returned to the subject of Distribution after he had discussed

the theory of Demand and Supply. For indeed nearly all of what he says about wages in his fourth Book is thorough and scientific as far as it goes: but it was short and its significance has been overlooked; and the chapter on Wages in his second Book has been generally accepted as expressing his deliberate views on the subject.

The doctrine contained in that chapter was attacked by many writers, among whom Longe, Cliffe Leslie and Jevons were conspicuous. But it was the Treatise *On Labour* by Thornton, his old friend and colleague at the India Office, that impressed Mill most, and indeed it seems to have so over-weighted his judgment that when publishing his recantation of his old doctrine (*Dissertations*, Vol. IV.), he took to himself blame for confusions of thought, of which it is not certain that he had been guilty: and he did not reply, as he might have done, that there is scarcely any trace of those confusions in his discussion of the theory of Distribution in the third chapter of the fourth Book of his *Political Economy*.

After a while Cairnes, in his *Leading Principles*, endeavoured to resuscitate the Wages-Fund Theory by expounding it in a form, which he thought would evade the attacks that had been made on it. But, though in the greater part of his exposition, he has succeeded in avoiding the old pitfalls, he has done so only by explaining away so much that is characteristic of the doctrine, that there is very little left in it to justify its title. He does not call attention to the real differences which there are between markets for labour and markets for goods; while he implies differences which do not exist. He lays stress upon the obvious fact that labour cannot receive as wages things that are only in process of production, and are not yet ready for use; and he goes some little way towards showing how wages are determined by the general economic conditions of the time and place, one of the chief of these conditions being the amount and character of the existing stock of capital. But his constant references to the Wages-Fund, while they do not enable him to say anything that could not have been said better in other ways, prevent him from bringing out the fundamental harmony and continuity that exists between the doctrine of wages and the main body of economic theory. (For a further discussion of the Wages-Fund Theory, the reader may be referred to General Walker's writings, in which may be included his share in a controversy in the second volume of the Harvard *Quarterly Journal of Economics*, to Prof. Sidgwick's *Principles of Political Economy*, Book II. Ch. VIII., and to the Article by Prof. Nicholson on *Wages* in the *Encyclopædia Britannica*.)

Reference has already been made (p. 138) to the first of Mill's Fundamental Propositions relating to capital: viz. that *Industry is limited by capital*. The phrase is an old one, which has been applied for many purposes. Sometimes it has been used to express the obvious

fact that labourers cannot exist unless either they or others supply themselves (and their families) with the necessaries for *life*; though it would really be better interpreted to mean that they cannot work efficiently unless they are supplied with the necessaries for *efficiency* (see Book II. Ch. IV.). Sometimes it is used as a short way of stating the Wages-Fund Theory in its vulgar form. And sometimes it is applied in the argument that the aggregate employment of labour cannot generally be increased by the simple plan of cutting people off, by Protective duties or in other ways, from opportunities of satisfying their wants in that manner which they would prefer; and it was chiefly in this connection that the phrase was used by Mill himself. The effects of Protective duties are very complex and cannot be discussed here; but Mill is clearly right in saying that in general the capital, that is applied to support and aid labour in any new industry created by such duties, "must have been withdrawn or withheld from some other, in which it gave, or would have given, employment to probably about the same quantity of labour which it employs in its new occupation." Or to put the argument in a more modern form, such legislation does not *prima facie* increase, either the National Dividend or the share of that Dividend which goes to labour. For it does not increase the supply of capital; nor does it, in any other way, cause the marginal efficiency of labour to rise relatively to that of capital. The rate that has to be paid for the use of capital is therefore not lowered; the National Dividend is not increased (in fact it is almost sure to be diminished); and, the share of it which goes to capital not being diminished, that which goes to labour cannot be increased.

This first Fundamental Proposition of Mill's is closely connected with his fourth, viz. that *Demand for commodities is not demand for labour:* and this again expresses his meaning badly. It is true that those who purchase any particular commodities do not generally supply the capital that is required to aid and support the labour which produces those commodities: they merely divert capital and employment from other trades to that for the products of which they make increased demand. But Mill, not contented with proving this, seems to imply that, to spend money on the direct hire of labour is more beneficial to the labourer than to spend it on buying commodities. Now there is a sense in which this is true. For, of course, the price of the commodities is likely to include a good deal of profits of manufacturer and middleman; and if the purchaser acts as employer, and puts the labour to work in such a way as to require little or no auxiliary capital, it is true that he does slightly diminish the demand for the services of the employing class, and for the loan of capital; and that he does by an equal amount increase the demand for labour, and thus raise wages; but he would have secured very nearly the same result by buying, say, hand-made lace instead of machine-made lace. And this kind of change is not at all what Mill had in his mind; for

in his defence of the proposition, he, with seeming unconsciousness, assumes that the wages of labour will be paid, as in practice they commonly are, as the work proceeds; and that the price of the commodities will be paid, as in practice it commonly is, after the commodities are made: and the whole of his argument really hangs on this assumption. It will be found that in every case which he has chosen to illustrate the doctrine, his arguments imply, though he does not seem to be aware of it, that the consumer when passing from purchasing commodities to hiring labour, postpones the date of his own consumption of the fruits of labour. It is this postponement, this waiting, that, in Mill's illustrative instances, really increases the capital ready to aid and support labour; and therefore increases the effective demand for labour. And the same postponement would have resulted in the same benefit to labour if the purchaser had made no change in the mode of his expenditure. (On this subject see the Appendix to Book IV. of Prof. Newcomb's *Political Economy*.)

CHAPTER IV.

DEMAND AND SUPPLY IN RELATION TO LABOUR. REAL AND NOMINAL EARNINGS.

Competition tends to make weekly wages in similar employments not equal, but proportionate to the efficiency of the workers.

§ 1. WHEN watching the action of demand and supply with regard to a material commodity, we are constantly met by the difficulty that two things which are being sold under the same name in the same market, are really not of the same quality and not of the same value to the purchasers. Or, if the things are really alike, they may be sold even in the face of the keenest competition at prices which are nominally different, because the conditions of sale are not the same: for instance, a part of the expense or risk of delivery which is borne in the one case by the seller may in the other be transferred to the buyer. But difficulties of this kind are much greater in the case of labour than of material commodities: the true price that is paid for labour often differs widely, and in ways that are not easily traced, from that which is nominally paid: and therefore the whole of the present chapter will be devoted to inquiring on what basis earnings are to be reckoned. This inquiry is a necessary preliminary to a study of the peculiarities in the mode of action of demand and supply in relation to labour.

It is commonly said that the tendency of competition is to equalize the earnings of people engaged in the same trade or in trades of equal difficulty; but this statement requires to be interpreted carefully. For competition tends to make the earnings got by two individuals of unequal efficiency in any given time, say, a day or a year, not equal, but unequal; and, in like manner, it tends not to equalize, but to render unequal the average weekly wages in two districts

in which the average standards of efficiency are unequal. Given that the average strength and energy of the working-classes are higher in the North of England than in the South, it then follows that the more completely "competition makes things find their own level," the more certain is it that average weekly wages will be higher in the North than in the South. Cliffe Leslie and some other writers have naively laid stress on local variations of wages as tending to prove that there is very little mobility among the working-classes, and that the competition among them for employment is ineffective. But most of the facts which they quote relate only to wages reckoned by the day or week: they are only half-facts, and when the missing halves are supplied, they generally support the opposite inference to that on behalf of which they are quoted. For it is found that local variations of weekly wages and of efficiency generally correspond: and thus the facts tend to prove the effectiveness of competition, so far as they bear on the question at all. We shall however presently find that the full interpretation of such facts as these is a task of great difficulty and complexity.

Time-earnings.

The earnings (or wages) which a person gets in any given time, such as a day, a week, or a year, may be called his TIME-EARNINGS (or TIME-WAGES): and we may then regard competition, or to speak more exactly, economic freedom and enterprise, as tending to make Time-earnings in occupations of equal difficulty and in neighbouring places (not equal, but) proportionate to the efficiency of the workers.

Payment by Piece-work.

But this phrase, "the efficiency of the workers," has some ambiguity. When the payment for work of any kind is apportioned to the quantity and quality of the work turned out, it is said that uniform rates of PIECE-WORK wages are being paid; and if two persons work under the same conditions and with equally good appliances, they are paid in proportion to their efficiencies when they receive piece-work wages calculated by the same lists of prices for each several kind of work. If however the appliances are not equally good, a uniform rate of piece-work wages gives results disproportionate to the efficiency of the workers. If,

for instance, the same lists of piece-work wages were used in Lancashire Cotton Mills supplied with old-fashioned machinery, as in those which have the latest improvements, the apparent equality would represent a real inequality. The more effective competition is, and the more perfectly economic freedom and enterprise are developed, the more surely will the lists be higher in the mills that have old-fashioned machinery than in the others.

Efficiency-earnings.

In order therefore to give its right meaning to the statement that the tendency of economic freedom and enterprise is to equalize wages in occupations of the same difficulty and in the same neighbourhood, we require the use of a new term; and we may find it in TASK-WAGES, or what is perhaps better EFFICIENCY-WAGES, or more broadly EFFICIENCY-EARNINGS; that is, earnings measured, not as Time-earnings are with reference to the time spent in earning them; and not as piece-work earnings are with reference to the amount of output resulting from the work by which they are earned; but with reference to the severity of the *task* which was imposed on the worker; or to get at the same result by another route, the exertion of ability and *efficiency* required of him.

The law of the tendency towards equality of Efficiency-earnings.

The tendency then of economic freedom and enterprise (or in more common phrase, of competition), to cause every one's earnings to find their own level, is a tendency to equality of Efficiency-earnings in the same district. This tendency will be the stronger, the greater is the mobility of labour, the less strictly specialized it is, the more keenly parents are on the look out for the most advantageous occupations for their children, the more rapidly they are able to adapt themselves to changes in economic conditions, and lastly the slower and the less violent these changes are.

A further correction to be introduced.

This statement of the law is, however, still subject to a slight correction. For we have hitherto supposed that it is a matter of indifference to the employer whether he employs few or many people to do a piece of work provided his total wages-bill for the work is the same. But that is not the case. Those workers who earn most in a week when paid at a given rate for their work, are those who are cheapest to their employers (and ultimately to the community, unless

indeed they overstrain themselves, and work themselves out prematurely). For they use only the same amount of fixed capital as their slower fellow workers; and, since they turn out more work, each part of it has to bear a less charge on this account. The Prime costs are equal in the two cases; but the Total cost of that done by those who are more efficient, and get the higher Time-wages, is lower than that done by those who get the lower Time-wages at the same rate of piece-work payment[1].

This point is seldom of much importance in out of door work, where there is abundance of room, and comparative little use of expensive machinery; for then, except in the matter of superintendence, it makes very little difference to the employer, whose wages-bill for a certain piece of work is £100, whether that sum is divided between twenty efficient or thirty inefficient workers. But when expensive machinery is used which has to be proportioned to the number of workers, the employer would often find the total cost of his goods lowered if he could get twenty men to turn out for a wages-bill of £50 as much work as he had previously got done by thirty men for a wages-bill of £40. In all matters of this kind the leadership of the world lies with America, and it is not an uncommon saying there that he is the best business man who contrives to pay the highest wages.

The corrected law then stands that the tendency of economic freedom and enterprise is generally to equalize efficiency-earnings in the same district: but where much expensive fixed capital is used, it would be to the advantage of the employer to raise the Time-earnings of the more efficient workers more than in proportion to their efficiency.

Of course this tendency is liable to be opposed by special customs and institutions, and, in some cases, by trades-union regulations[2].

[1] This argument would be subject to corrections in cases in which the trade admitted of the employment of more than one shift of workpeople. It would often be worth an employer's while to pay to each of two shifts as much for an eight hours' day as he now pays to one shift for a ten hours' day. For though each worker would produce less, each machine would produce more on the former than on the latter plan. But to this point we shall return.

[2] Ricardo did no overlook the importance of the distinction between variations

§ 2. Thus much with regard to estimates of the work for which the earnings are given: but next we have to consider more carefully the fact, which we have already noticed[1], that in estimating the real earnings of an occupation account must be taken of many things besides its money receipts; and that on the other side of the account we must reckon for many incidental disadvantages besides those indirectly involved in the strain and stress of the work.

Real wages and *Nominal wages.*

As Adam Smith says, "the REAL WAGES of labour may be said to consist in the quantity of the necessaries and conveniences of life that are given for it; its NOMINAL WAGES in the quantity of money..... The labourer is rich or poor, is well or ill rewarded, in proportion to the real, not to the nominal, wages of his labour[2]." But the words "that are given for it" employed here must not be taken to mean that the necessaries and conveniences are all directly provided by the purchaser of the labour or its products; for some of the advantages of an occupation are inseparable from it and require no special outlay on his part.

Allowance must be made for variations in the purchasing power of money,

In endeavouring to ascertain the Real wages of an occupation at any place or time, the first step is to allow for variations in the purchasing power of the money in which Nominal wages are returned. This point cannot be thoroughly dealt with till we come to treat of the Theory of

in the amount of commodities paid to the labourer as wages, and variations in the profitableness of the labourer to his employer. He saw that the real interest of the employer lay not in the amount of wages that he paid to the labourer, but in the ratio which those wages bore to the value of the produce resulting from the labourer's work: and he decided to regard the rate of wages as measured by this ratio: and to say that wages rose when this ratio increased, and that they fell when it diminished. It is to be regretted that he did not invent some new term for this purpose; for his artificial use of a familiar term has seldom been understood by others, and was in some cases even forgotten by himself. (Compare Senior's *Political Economy*, pp. 142—8.) The variations in the productiveness of labour which he had chiefly in view were those which result from improvements in the arts of production on the one hand, and on the other from the action of the Law of Diminishing Return, when an increase of population required larger crops to be forced from a limited soil. Had he paid careful attention to the increase in the productiveness of labour that results directly from an improvement in the labourer's condition, the position of economic science, and the real well-being of the country, would in all probability be now much further advanced than they are. As it is, his treatment of wages is less instructive than that of Malthus.

[1] Book IV. Ch. VI. § 8.

[2] *Wealth of Nations*, Book I. Ch. V.

Money as a whole. But it may be remarked in passing that this allowance would not be a simple arithmetical reckoning, even if we had perfectly accurate statistics of the history of the prices of all commodities. For if we compare distant places or distant times, we find people with different wants and different means of supplying those wants: and even when we confine our attention to the same time and place we find people of different classes spending their incomes in very different ways. The prices of velvet, for instance, of operatic entertainments and scientific books are not very important to the lower ranks of industry: but a fall in the price of bread or of shoe leather affects them much more than it does the higher ranks. Differences of this kind must always be borne in mind, and it is generally possible to make some sort of rough allowance for them[1].

with special reference to the consumption of the grade of labour concerned.

§ 3. We have already noticed[2] that a person's total real income is found by deducting from his gross income the outgoings that belong to its production; and that this gross income includes many things which do not appear in the form of money payments and are in danger of being overlooked.

Firstly, then, with regard to the outgoings. We do not here reckon the expenses of education, general and special, involved in the preparation for any trade: nor do we take account of the exhaustion of a person's health and strength in his work. Allowance for them may be best made in other

Allowance must be made for trade expenses

[1] Many plans have been suggested for making a special estimate of the purchasing power of money with regard to those things that are chiefly consumed by the working classes, the importance of each thing being taken in such estimate as proportionate to the amount spent on it in an average working class budget. Mr Edward Atkinson has suggested that this measure of purchasing power should be called "a standard ration" (see the Appendix to his *Distribution of Products*). But at best it could only be approximate, partly because the working classes contain within themselves several different grades, with corresponding variations in the per-centages of their incomes which they devote to purchasing different things. Working men's budgets have often been collected and compared; as, for instance, by her Majesty's consuls, in the *Reports on the condition of the Industrial Classes*, 1872; and by those of the United States, see Young's *Labour in Europe and America*. See also the reports of various American Labour Bureaux, especially that of the United States Commissioner of Labour for 1886. General Walker's Treatise, *On Wages*, and Roscher's *Political Economy*, contain many suggestive remarks and facts bearing on the subject of this section and indeed of the whole chapter.

[2] Book II. Ch. VI.

ways. But we must deduct all trade expenses, whether they are incurred by professional men or artisans. Thus from the barrister's gross income we must deduct the rent of his office and the salary of his clerk: from the carpenter's gross income we must deduct the expenses which he incurs for tools; and when estimating the earnings of quarrymen in any district we must find out whether local custom assigns the expenses of tools and blasting powder to them or their employers. Such cases are comparatively simple; but it is more difficult to decide how large a part of the expenses which a medical man incurs, for house and carriage and social entertainments, are to be regarded as trade expenses; or how much of the charges to which a postman is put for boots, or a domestic servant or an attendant in a fashionable shop for clothes, should be deducted under this head[1].

and for all incidental advantages and disadvantages.

Turning next to the elements of which real earnings are made up, we may call to mind the general remarks made in our discussion of the term Income[2]. We saw that there are many elements of real income which do not appear in the form of money, and are in some danger of being overlooked. The services which people render to themselves or to other members of their families have to be reckoned for, especially when individual, or trade, or local customs differ in this respect; and, when comparing earnings in different places, we must take account of the rights to the use of common property which are enjoyed in them, as for instance toll-free roads and bridges, public parks and museums; and of the services of the State generally, and especially in maintaining security and freedom. In some classes of inquiries we must take careful note on the one hand of the advantages which towns' folk get from the lighting of their streets, and from

[1] This class of questions is of more practical importance than those closely allied questions on which we touched (Book II. Ch. v. § 3), and which relate to the lines of division between Production and Consumption-capital, and between wealth that is and is not capital. The close connection, however, between the two groups of questions illustrates the fact that the earnings of many even of the professional and wage-receiving classes are in a considerable measure dependent on their being in command of some material capital.

[2] Book II. Ch. VI.

easy access to varied amusements and social intercourse; and on the other of those which country folk derive from the abundance of fresh air and light, and of open-air play for their children. The greater cheapness of houseroom in the country and of most other things in the towns, is an element of the purchasing power of money referred to in the last section.

Where wages are partly paid in kind, the allowances must be taken at their value to those who receive them, not at their cost to those who give them.

§ 4. Next let us take account of the different modes of payment which are adopted in different occupations. We may select for study the case of domestic servants. We have already noticed that when they have to supply themselves at their own cost with expensive clothes, which they would not buy if free to do as they liked, the value of their wages to them is somewhat lowered by this compulsion. And when the employer provides expensive liveries, houseroom and food for his servants, these are generally worth much less to them than they cost to him. It is therefore an error to reckon the real wages of domestic servants, as some statisticians have done, by adding to their money wages the equivalent of the cost to their employer of everything that he provides for them.

Again when a farmer hauls coals free for his men, choosing, of course, times when his horses have little to do, the real addition to their earnings is much greater than the cost to him. The same applies to many perquisites and allowances, as for instance, when the employer allows his men to have without payment commodities which though useful to them, are almost valueless to him on account of the great expenses involved in marketing them; or again when he allows them to buy for their own use at the wholesale price commodities which they have helped to produce.

When however this permission to purchase is changed into an obligation to purchase, the door is opened to grave abuses. The farmer who compels his men to take from him spoilt wheat at the wholesale price of good wheat, is really paying them lower wages than he appears to be. And this leads us to consider the influence of the Truck system on the relations between the nominal and real value of wages.

The Truck system. In some cases it is almost necessary: and it is then usually worked in a generous spirit for the benefit of all concerned.

§ 5. In a new country in which large agricultural, mining, and other businesses often spring up at a great distance from any considerable town, the employers are compelled to supply their workpeople with everything they want, either by paying part of their wages in the form of allowances of food, clothing &c., or by opening stores for them. Stores of this kind are generally managed on a straightforward business-like principle, and wholesome customs and traditions thus started are apt to survive even when the employers' shops have ceased to be necessary in consequence of the growth of fairly good independent shops in the neighbourhood. The shops remain an almost unmixed benefit to all concerned so long as dealing at them is voluntary: and even when it becomes compulsory they may be on the whole a benefit to the workpeople, provided they are managed with ability and honesty. For, since the employers ensure themselves prompt sales and secure payments by contracting that a certain part of the wages paid by them shall be taken out in purchases at the stores, they are able to work these stores more cheaply than ordinary retail shops, and thus to pay, with an equal profit to themselves, higher real wages than would otherwise be possible.

But in an old country it is seldom necessary, and is not often adopted by generous employers.

But employers, whose main business is in a healthy condition, are generally too busy to be willing to manage such shops unless there is some strong reason for doing so; and consequently in old countries those who have adopted the Truck system have more often than not done so with the object of getting back by underhand ways part of the wages which they nominally paid away. They have compelled those who work at home to hire machinery and implements at exorbitant rents; they have compelled all their workpeople to buy adulterated goods at short weights and high prices; and in some cases even to spend a very large part of their wages on goods on which it was easiest to make the highest rate of profits, and especially on spirituous liquors[1]. The evil is however at its worst when the shop is kept not

[1] Mr Lecky records an amusing case of employers who could not resist the temptation to buy theatre tickets cheap, and compel their workpeople to buy them at full price (*History of the Eighteenth Century*, VI., p. 158).

by the employer, but by the foreman or by persons acting in concert with him, and the foreman, without openly saying so, gives it to be understood that those who do not deal largely at the shop will find it difficult to get his good word. For an employer suffers more or less from anything that injures his workpeople, while the exactions of an unjust foreman are but little held in check by regard for his own ultimate interest.

On the whole, when the Truck system prevails in any trade in an old country, we may fairly assume that the real rate of wages is lower than the nominal. The most virulent forms of the system have always been those which have lain beneath the surface; and in our own day they still flourish in those industries which retain a semi-mediæval character, while they seldom exist in those in which the modern factory system prevails. The influence of the system for evil in the past has been so great, that it may rank with the old poor law and the unhealthy conditions of juvenile labour early in the century as a chief cause of the degradation of large numbers of the working classes: but its influence is not now great save in a few trades[1].

Uncertainty of success may be allowed for by striking an average.

§ 6. Next we have to take account of the influences exerted on the real rate of earnings in an occupation by the uncertainty of success and the inconstancy of occupation in it.

We should obviously start by taking the earnings of an occupation as the average between those of the successful and unsuccessful members of it; but care is required to get the true average. For if the average earnings of those who are successful are £2000 a year, and of those who are unsuccessful are £400 a year, the average of the whole will be

[1] The story of the abuses of the Truck system in modern England is told in a long series of Parliamentary Reports, which come down to the present time: and while the evil itself has been steadily diminishing, the intensity of the light thrown on what remains has been increasing as steadily. An excellent account of the payments in kind by which the agricultural labourer's wages are supplemented is given by Mr Kebbel (*The Agricultural Labourer*, 2nd Ed., ch. II.). A table to be found in Vol. xx. of the United States Census for 1880 shows that of 773 manufacturing firms which answer questions as to the mode of payment adopted by them, 681, or 88 per cent., pay in cash: but in some of the States which are thinly populated the proportion is not much more than one half.

£1200 a year only if the former group is as large as the latter; but if, as is perhaps the case with barristers, the unsuccessful are ten times as numerous as the successful, the true average is but £330; and further, many of those who have failed most completely, are likely to have left the occupation altogether, and thus to escape being counted.

And again though, by taking this average, we obviate the necessity of making any separate allowance for insurance against risk, account generally remains to be taken of the evil of uncertainty[1]. For there are many people of a sober steady-going temper, who like to know what is before them, and who would far rather have an appointment which offered a certain income of say £400 a year than one which was not unlikely to yield £600, but had an equal chance of affording only £200. Uncertainty, therefore, which does not appeal to great ambitions and lofty aspirations has special attractions for very few, while it acts as a deterrent to many of those who are making their choice of a career. And as a rule the certainty of moderate success attracts more than an expectation of an uncertain success that has an equal actuarial value.

Though a few extremely high prizes have a disproportionately great attractive force.

But on the other hand if an occupation offers a few extremely high prizes, its attractiveness is increased out of all proportion to their aggregate value. For this there are two reasons. The first is that young men of an adventurous disposition are more attracted by the prospects of a great success than they are deterred by the fear of failure; and the second is that the social rank of an occupation depends more on the highest dignity and the best position which can be attained through it than on the average good fortune of those engaged in it. It is an old maxim of statecraft that a Government should offer a few good prizes in every department of its service: and in aristocratic countries the chief officials receive very high salaries, while those of the lower grades are comforted in the receipt of salaries below the market level for similar services by their hopes of ultimately rising to a coveted post, and by the social consideration which in such countries always

[1] See Book VI. Ch. VI. § 5.

attends on public officers. This arrangement has the incidental effect of favouring those who are already rich and powerful; and partly for that reason it is not adopted in democratic countries. They often go to the opposite extreme, and pay more than the market rates for their services to the lower ranks, and less to the upper ranks. But that plan, whatever be its merits on other grounds, is certainly an expensive one.

Irregularity of employment can be allowed for by a simple average in some cases;

We may next consider the influence which inconstancy of employment exerts on wages. It is obvious that, in those occupations in which employment is irregular the pay must be high in proportion to the work done: the medical man and the shoeblack must receive when at work a pay which covers a sort of retaining fee for the time when they have nothing to do. If the advantages of their occupations are in other respects equal, the bricklayer when at work must be paid a higher rate than the joiner, and the joiner than the railway guard. For work on the railways is nearly constant all the year round; while the joiner and the bricklayer are always in danger of being made idle by slackness of trade, and the bricklayer's work is further interrupted by frost and rain. The ordinary method of allowing for such interruptions is to add up the earnings for a long period of time and to take the average of them; but this is not quite satisfactory unless we assume that the rest and leisure, which a man gets when out of employment, are of no service to him directly or indirectly.

but not in all; each case must be treated on its own merits.

This assumption may be fairly made in some cases; for waiting for work often involves so much anxiety and worry that it causes more strain than the work itself would do[1]. But that is not always so. Interruptions of work that occur in the ordinary course of business, and raise no fears about the future, give opportunity for the system to recruit itself and lay in stores of energy for future exertions. The successful barrister, for instance, is subject to a severe strain during some parts of the year; and that is itself an evil: but

[1] The evils of irregularity of employment are well and forcibly stated in a lecture on that subject given by Prof. Foxwell in 1886.

when allowance has been made for it, he may be regarded as losing very little in the long run by being prevented from earning anything during the Legal Vacations.

Supplementary earnings.

§ 7. Next we must take account of the opportunities which a man's surroundings may afford of supplementing the earnings which he gets in his chief occupation, by doing work of other kinds. And account may need to be taken also of the opportunities which these surroundings offer for the work of other members of his family.

Family earnings.

Many economists have even proposed to take as their unit the earnings of a family: and there is much to be said for this plan with reference to agriculture and those old-fashioned domestic trades in which the whole family works together, provided that allowance is made for the loss resulting from any consequent neglect by the wife of her household duties. But in modern England trades of this kind are exceptional, and the chief influence which the occupation of the head of a family exerts on that of other members comes as a rule from the place in which he works and not directly from the nature of his trade[1].

The attractiveness of a trade depends not on its money-earnings, but its Net Advantages;

§ 8. Thus then the attractiveness of a trade depends on many other causes besides the difficulty and strain of the work to be done in it on the one hand, and the money-earnings to be got in it on the other. The true reward which it offers to labour has to be calculated by estimating, as well as may be done, the money value of its special advantages, among which its earnings are included, and also of its special disadvantages; and by deducting the second from the first, so as to obtain its *Net Advantages*. And when the earnings in any occupation are regarded as acting on the supply of labour in it, or when they are spoken of as being its supply price, we must always understand that the term is only used as a short expression for Net Advantages. We must take account of the facts that one trade is healthier or cleanlier than another, that it is carried on in a more wholesome or pleasant locality, or that it involves a better social position; as is instanced by Adam Smith's

[1] But compare Book IV. Ch. X. § 3.

well-known remark that the aversion which many people have for the work of a butcher, and to some extent for the butcher himself, raises the earnings of butchers above those of bakers.

but here there is room for the action of differences of character between individuals,

Of course individual character will always assert itself in estimating particular advantages at a very high or a very low rate. Some persons for instance are so fond of having a cottage of their own that they prefer living on very low wages in the country to getting much higher wages in the town; while others are indifferent as to the amount of house-room they get, and are willing to go without the comforts of life provided they can procure what they regard as its luxuries. This was the case, for example, with a family of whom the Royal Commission on the Housing of the Working Classes in 1884 were told: their joint earnings were £7 a week, but they chose to live in one room, so as to be able to spend money freely on excursions and amusements.

Personal peculiarities such as these prevent us from predicting with certainty the conduct of particular individuals. But if each advantage and disadvantage is reckoned at the average of the money values it has for the class of people who would be likely to enter an occupation, or to bring up their children to it, we shall have the means of estimating roughly the relative strengths of the forces that tend to increase or diminish the supply of labour in that occupation *at the time and place* which we are considering. For it cannot be too often repeated that grave errors are likely to result from taking over an estimate of this kind based on the circumstances of one time and place, and applying it without proper precaution to those of another time or another place.

between races,

In this connection it is interesting to observe the influence of differences of national temperament in our own time. Thus in America we see Swedes and Norwegians drift to agriculture in the North-west, while the Irish, if they go on the land at all, choose farms in the older Eastern States. The preponderance of Germans in the furniture and the brewing industries, and of Irish and French Canadians in the textile industries of the United States, and the preference of the

Jewish immigrants in London for the boot making industries and for retail trade—all these are due partly to differences in national aptitudes, but partly also to differences in the estimates that people of different races form of the incidental advantages and disadvantages of different trades.

and between industrial grades.

Lastly, the disagreeableness of work seems to have very little effect in raising wages, if it is of such a kind that it can be done by those whose industrial abilities are of a very low order. For the progress of sanitary science has kept alive many people who are unfit for any but the lowest grade of work. They compete eagerly for the comparatively small quantity of work for which they are fitted, and in their urgent need they think almost exclusively of the wages they can earn: they cannot afford to pay much attention to incidental discomforts, and indeed many of them are by education prepared to regard the dirtiness of an occupation as an evil of but minor importance.

An evil paradox.

And from this arises the strange and paradoxical result that the dirtiness of some occupations is a cause of the lowness of the wages earned in them. For employers find that this dirtiness adds much to the wages they would have to pay to get the work done by skilled men of high character working with improved appliances; and so they often adhere to old methods which require only unskilled workers of but indifferent character, and who can be hired for low (Time-) wages, because they are not worth much to any employer. There is no more urgent social need than that labour of this kind should be made scarce and dear.

CHAPTER V.

DEMAND AND SUPPLY IN RELATION TO LABOUR, CONTINUED.

The importance of many peculiarities in the action of demand and supply with regard to labour depends much on the cumulativeness of their effects;

§ 1. THE action of demand and supply with regard to labour was discussed in the last chapter with reference to the difficulties of ascertaining the real as opposed to the nominal price of labour. But some peculiarities in this action remain to be studied which are of a more vital character: they affect not merely the form, but also the substance of the action of the forces of demand and supply, and to some extent limit and hamper the free action of those forces. And we shall find that the influence of many of them is not at all to be measured by their first and most obvious effects. Those effects which are cumulative are generally far more important in the long run than those which are not, however prominent the latter may appear.

thus resembling the influence of custom.

The problem has thus much in common with that of tracing the economic influence of custom. For it has already[1] been noticed, and it will become more clear as we go on, that the direct effects of custom in causing a thing to be sold for a price sometimes a little higher and sometimes a little lower than it would otherwise fetch, are not really of very great importance, because any such divergence does not, as a rule, tend to perpetuate and increase itself; but on the contrary, if it becomes considerable, it tends itself to call into action

[1] Book I. Ch. II. § 2.

forces that counteract it. Sometimes these forces break down the custom altogether; but more often they evade it by gradual and imperceptible changes in the character of the thing sold, so that the purchaser really gets a new thing at the old price under the old name. These direct effects then are obvious but they are not cumulative. On the other hand, the indirect effects of custom in hindering the methods of production and the character of producers from developing themselves freely are not obvious; but they generally are cumulative, and therefore exert a deep and controlling influence over the history of the world. If custom checks the progress of one generation, then the next generation starts from a lower level than it otherwise would have done; and any retardation which it suffers itself is accumulated and added to that of its predecessor, and so on from generation to generation.

And so it is with regard to the action of demand and supply on the earnings of labour. If at any time it presses hardly on any individuals or class, the direct effects of the evil are obvious. But the sufferings that result are of different kinds: those of which the effects are only direct, and end with the evil by which they were caused, are not to be compared in importance with those that have the indirect effect of lowering the character of the workers or of hindering it from becoming stronger. For they cause further weakness and further suffering, which again in their turn cause yet further weakness and further suffering, and so on cumulatively. On the other hand high earnings, and a strong character, lead to greater strength and higher earnings, which again lead to still greater strength and still higher earnings, and so on cumulatively. Much of our attention will then be given henceforward to distinguishing those influences which are, from those which are not cumulative.

First peculiarity: the worker sells his work, but retains property in himself.

§ 2. The first point to which we have to direct our attention is the fact that human agents of production are not bought and sold as machinery and other material agents of production are. The worker sells his work, but he himself remains his own property: those who bear the expenses

of rearing and educating him receive but very little of the price that is paid for his services in later years[1].

Consequently the investment of capital in him is limited by the means, the forethought, and the unselfishness of his parents.

Whatever deficiencies the modern methods of business may have, they have at least this virtue, that he who bears the expenses of production of material goods, receives the price that is paid for them. He who builds factories or steam-engines or houses, or rears slaves, reaps the benefit of all net services which they render so long as he keeps them for himself; and when he sells them he gets a price which is the estimated net value of their future services[2]. The stronger and the more efficient he makes them, the better his reward; and therefore he extends his outlay until there seems to him no good reason for thinking that the gains resulting from any further investment would compensate him. He must do this prudently and boldly, under the penalty of finding himself worsted in competition with others who follow a broader and more far-sighted policy, and of ultimately disappearing from the ranks of those who direct the course of the world's business. The action of competition, and the survival in the struggle for existence of those who know best how to extract the greatest benefits for themselves from the environment, tend in the long run to put

[1] This point has already been discussed Book IV. Ch. VI. § 7; and to that the reader is now referred.

[2] This however does not imply that slave labour is in any way economical. Adam Smith remarked long ago that "The fund destined for replacing or repairing, if I may say so, the wear and tear of the slave is commonly managed by a negligent master or careless overseer. That destined for performing the same office for the free man is managed by the free man himself... with strict frugality and parsimonious attention." And hence he argued that though the wages of free men must cover their wear and tear, "the work done by them comes cheaper in the end than that performed by slaves.... It is found to be so even at Boston, New York and Philadelphia, where the wages of common labour are so very high." (*Wealth of Nations*, Book I. Ch. VIII.) And Cairnes, in his masterly book on the *Slave Power*, brought the evidence on this subject down to more recent times: and demonstrated the inefficiency and extravagance of the modern slave system.

It is true that slavery was not always entirely without advantages. When the dignity of man as man was as yet not understood, and slaves and slaveowners alike regarded their mutual relations as natural, and when, partly in consequence of this, the family life of the slave was respected, the investment of capital in raising him to a fairly high level of industrial and literary and artistic culture, worked almost as smoothly and brought in its returns almost as safely as if the slave had been a machine. But in later times the uneasy consciousness that slavery was wrong made intelligence in the slave a source of fear to his master.

the building of factories and steam-engines into the hands of those who will be ready and able to incur every expense which will add more than it costs to their value as productive agents. But the investment of capital in the rearing and early training of the workers of England is limited by the resources of parents in the various grades of society, by their power of forecasting the future, and by their willingness to sacrifice themselves for the sake of their children.

This evil is comparatively small in the higher ranks of society;

This evil is indeed of comparatively small importance with regard to the higher industrial grades. For in those grades most people distinctly realize the future, and "discount it at a low rate of interest." They exert themselves much to select the best careers for their sons, and the best trainings for those careers; and they are generally willing and able to incur a considerable expense for the purpose. The professional classes especially, while generally eager to save some capital *for* their children, are even more on the alert for opportunities of investing it *in* them. And whenever there occurs in the upper grades of industry a new opening for which an extra and special education is required, the future gains need not be very high relatively to the present outlay, in order to secure a keen competition for the post.

but very great in the lower ranks,

But in the lower ranks of society the evil is great. For the slender means and education of the parents, and the comparative weakness of their power of distinctly realizing the future, prevent them from investing capital in the education and training of their children with the same free and bold enterprise with which capital is applied to improving the machinery of any well-managed factory. Many of the children of the working-classes are imperfectly fed and clothed; they are housed in a way that promotes neither physical nor moral health; they receive a school education which, though in modern England it may not be very bad so far as it goes, yet goes only a little way; they have few opportunities of getting a broader view of life or an insight into the nature of the higher work of business, of science or of art; they meet hard and exhaustive toil early on the way, and for the greater part keep to it all their lives. At last they go to the grave carrying with them undeveloped abili-

ties and faculties; which, if they could have borne full fruit, would have added to the material wealth of the country—to say nothing of higher considerations—many times as much as would have covered the expense of providing adequate opportunities for their development.

and the evil is cumulative.

But the point on which we have specially to insist now is that this evil is cumulative. The worse fed are the children of one generation, the less will they earn when they grow up, and the less will be their power of providing adequately for the material wants of their children; and so on: and again, the less fully their own faculties are developed, the less will they realize the importance of developing the best faculties of their children, and the less will be their power of doing so. And conversely any change that awards to the workers of one generation better earnings, together with better opportunities of developing their best qualities, will increase the material and moral advantages which they have the power to offer to their children: while by increasing their own intelligence, wisdom and forethought, it will also to some extent increase their willingness to sacrifice their own pleasures for the well-being of their children; though there is much of that willingness now even among the poorest classes, so far as their means and the limits of their knowledge will allow.

In this connection we have to take account not only of the direct investment of capital in the education of children, but also of their access to lucrative careers.

§ 3. The advantages which those born in one of the higher grades of society have over those born in a lower, consist in a great measure of the better introductions and the better start in life which they receive from their parents. Thus those government appointments in which a good salary can be earned by but very moderate ability and industry, are even now, though the difference is less than it was, more accessible to the sons of the aristocracy than to those of the middle classes. These in their turn have advantages of their own. Not to speak of those who inherit a share in an existing business, or capital with which to start one of their own, they generally owe some of their success to the business or professional introduction which they receive from relatives and from friends of the family. But the importance of this good start in life is nowhere seen more clearly than

in a comparison of the fortunes of the sons of artisans and of unskilled labourers.

The son of the artisan has a better start in life than the son of the unskilled labourer;

There are not many skilled trades to which the son of an unskilled labourer can get easy access; and in the large majority of cases the son follows the father's calling. The father has indeed special facilities for introducing his son. Employers and their foremen generally give a preference to a lad whose father they already know and trust, over one for whom they would have to incur the entire responsibility. And in many trades a lad, even after he has got entrance to the works, is not very likely to make good progress and obtain a secure footing, unless he is able to work by the side of his father, or some friend of his father's, who will take the trouble to teach him and to let him do work that requires careful supervision, but has an educational value.

he is brought up in a more refined home and with more of a mother's care.

But the son of the artisan has further advantages. He generally lives in a better and cleaner house, and under material surroundings that are more consistent with refinement than those with which the ordinary labourer is familiar. His parents are likely to be better educated, and to have a higher notion of their duties to their children; and, last but not least, his mother is likely to be able to give more of her time to the care of her family.

The great importance of this last element.

If we compare one country of the civilized world with another, or one part of England with another, or one trade in England with another, we find that the degradation of the working classes varies almost uniformly with the amount of rough work done by women. The most valuable of all capital is that invested in human beings; and of that capital the most precious part is the result of the care and influence of the mother, so long as she retains her tender and unselfish instincts, and has not been hardened by the strain and stress of unfeminine work.

This draws our attention to the fact that in estimating the cost of production of efficient labour, we must often take as our unit the family. At all events we cannot treat the cost of production of efficient men as an isolated problem; it must be taken as part of the broader problem of the cost of production of efficient men together with the women who

are fitted to make their homes happy, and to bring up their children vigorous in body and mind, truthful and cleanly, gentle and brave[1].

§ 4 As the youth grows up, the influence of his parents and his schoolmaster declines; and thenceforward to the end of his life his character is moulded chiefly by the nature of his work and the influence of those with whom he associates for business, for pleasure and for religious worship.

The technical training of the workshop depends in a great measure on the unselfishness of the employer.

A good deal has already been said[2] of the technical training of adults, of the decadence of the old apprenticeship system, and of the difficulty of finding anything to take its place. Here again we meet the difficulty that whoever may incur the expense of investing capital in developing the abilities of the workman, those abilities will be the property of the workman himself: and thus the virtue of those

[1] The relation in which the cost of production of an adult male stands to the cost of production of a family unit was discussed in a thoroughly scientific manner by Cantillon, *Essai*, Part I. Ch. XI., and again by Adam Smith, *Wealth of Nations*, Book I. Ch. VIII.: and in more recent times by Dr Engel, in his brilliant essay *Der Preis der Arbeit*, and by others. Many estimates have been made of the addition to the wealth of a country caused by the arrival of an immigrant whose cost of production in his early years was defrayed elsewhere, and who is likely to produce more than he consumes in the country of his adoption. The estimates have been made on many plans, all of them rough, and some apparently faulty in principle: but most of them find the average value of an immigrant to be about £200. It would seem that, if we might neglect provisionally the difference between the sexes, we should calculate the value of the immigrant on the lines of the argument of Book VI. Ch. V. § 2. That is, we should "discount" the probable value of all the future services that he might render, add them together, and deduct from them the sum of the "discounted" values of all the wealth and direct services of other persons that he would consume: and it may be noted that in thus calculating each element of production and consumption at its probable value, we have incidentally allowed for the chances of his sickness and premature death, as well as of his failure or success in life. The money cost of production which his native countr had incurred for him would in like manner be found by adding together the "accumulated" values of all the several elements of his past consumption and deducting from them the sum of the "accumulated" values of all the several elements of his past production.

Next, to take account of the difference between the sexes, it is clear that the above plan puts the value of the male immigrants too high and that of the female too low: unless allowance is made for the service which women render as mothers, as wives and as sisters, and the male immigrants are charged with having consumed these services, while the female immigrants are credited with having supplied them. (See Mathematical Note XXVI.)

[2] Book IV. Ch. VI.

who have aided him must remain for the greater part its own reward.

It is true that high-paid labour is really cheap to those employers who are aiming at leading the race, and whose ambition it is to turn out the best work by the most advanced methods. They are likely to give their men high wages and to train them carefully; partly because it pays them to do so, and partly because the character that fits them to take the lead in the arts of production is likely also to make them take a generous interest in the well-being of those who work for them. But though the number of such employers is increasing, they are still comparatively few. And even they cannot always afford to carry the investment of capital in the training of their men as far as they would have done, if the results of the investment would accrue to them in the same way as the results of any improvements they might make in their machinery; even they are sometimes checked by the reflection that they are in a similar position to that of a farmer who with an uncertain tenure and no security of compensation for his improvements is sinking capital in raising the value of his landlord's property.

Its benefits are cumulative, but accrue only in part to him or his heirs.

Again, in paying his workpeople high wages and in caring for their happiness and culture, the liberal employer confers benefits which do not end with his own generation. For the children of his workpeople share in them, and grow up stronger in body and in character than otherwise they would have done. The price which he has paid for labour will have borne the expenses of production of an increased supply of high industrial faculties in the next generation: but these faculties will be the property of others, who will have the right to hire them out for the best price they will fetch: neither he nor even his heirs can reckon on reaping much material reward for this part of the good that he has done.

Second peculiarity.

§ 5. The next of those characteristics of the action of demand and supply peculiar to labour which we have to study lies in the fact that when a person sells his services, he has to present himself where they are delivered. It matters nothing to the seller of bricks whether they are to be used in

building a palace or a sewer: but it matters a great deal to the seller of labour, who undertakes to perform a task of given difficulty, whether or not the place in which it is to be done is a wholesome and a pleasant one, and whether or not his associates will be such as he cares to have. In those yearly hirings which still remain in some parts of England, the labourer inquires what sort of a temper his new employer has, and what sort of food he provides, quite as anxiously as what rate of wages he pays.

The seller of labour must deliver it himself.

This peculiarity of labour is of great importance in many individual cases, but it does not often exert a broad and deep influence of the same nature as that last discussed. The more disagreeable the incidents of an occupation, the higher of course are the wages required to attract people into it: but whether these incidents do lasting and wide spreading harm depends on whether they are such as to undermine men's physical health and strength or to lower their character. When they are not of this sort, they are indeed evils in themselves, but they do not generally cause other evils beyond themselves; their effects are seldom cumulative.

The effects of this are not generally cumulative, and their real importance is seldom very great.

Since however no one can deliver his labour in a market in which he is not himself present, it follows that the mobility of labour and the mobility of the labourer are convertible terms: and the unwillingness to quit home, and to leave old associations, including perhaps some loved cottage and burial ground, will often turn the scale against a proposal to seek better wages in a new place. And when the different members of a family are engaged in different trades, and a migration, which would be advantageous to one member, would be injurious to others, the inseparability of the worker from his work considerably hinders the adjustment of the supply of labour to the demand for it. But of this more hereafter.

§ 6. Again, labour is often sold under special disadvantages, arising from the closely connected group of facts that labour power is "perishable," that the sellers of it are commonly poor and have no reserve fund, and that they cannot easily withhold it from the market.

Third and fourth peculiarities. Labour is perishable,

and the sellers of it are often at a disadvantage in bargaining.

But many material commodities are perishable.

Perishableness is an attribute common to the labour of all grades: the time lost when a worker is thrown out of employment cannot be recovered, though in some cases his energies may be refreshed by rest[1]. It must however be remembered that much of the working power of material agents of production is perishable in the same sense; for a great part of the income which they also cease to earn when they are thrown out of work is completely lost. There is indeed some saving of wear and tear on a factory, or a steamship, when it is lying idle: but this is often small compared with the income which its owners have to forego: they get no compensation for their loss of interest on the capital invested, or for the depreciation which it undergoes from the action of the elements or from its tendency to be rendered obsolete by new inventions.

Again, many vendible commodities are perishable. In the strike of dock labourers in London in 1889, the perishableness of the fruit, meat, &c. on many of the ships told strongly on the side of the strikers.

Disadvantages in bargaining are greatest generally among the lowest grades of labour.

The want of reserve funds and of the power of long withholding their labour from the market is common to nearly all grades of "labour" in that narrow use in which the term is limited to those whose work is chiefly with their hands. But it is especially true of unskilled labourers, partly because their wages leave very little margin for saving, partly because when any group of them suspends work, there are large numbers who are capable of filling their places. And, as we shall see presently when we come to discuss trade combinations, it is more difficult for them than for skilled artisans to form themselves into strong and lasting combinations; and so to put themselves on something like terms of equality in bargaining with their employers. For it must be remembered that a man who employs a thousand others, is in himself an absolutely rigid combination to the extent of one thousand units among buyers in the labour market.

They do not attach

But these statements do not apply to all kinds of labour. Domestic servants though they have not large reserve funds,

[1] See above, Ch. IV. § 6.

and seldom any formal trades-union, are sometimes better able than their employers to act in concert. The domestic servants of fashionable London got very high wages, and some of them occasionally tyrannized a little over their employers in the last century; and in the present century their total real wages are even higher in comparison with those skilled trades in which equal skill and ability are required. But on the other hand those domestic servants who have no specialized skill and hire themselves to persons with very narrow means, have not been able to make even tolerably good terms for themselves, but have worked very hard for very low wages.

to domestic servants,

Turning next to the highest grades of industry, we find that as a rule they have the advantage in bargaining over the purchaser of their labour. Many of the professional classes are richer, have larger reserve funds, more knowledge and resolution, and much greater power of concerted action, than most of those to whom they sell their services.

nor to professional men.

If further evidence were wanted that the disadvantages of bargaining under which the vendor of labour commonly suffers, depend on his own circumstances and qualities and not on the fact that the particular thing which he has to sell is labour; such evidence could be found by comparing the successful barrister or solicitor or physician, or opera singer or jockey with the poorer independent producers of vendible goods. Those, for instance, who in remote places collect shellfish to be sold in the large central markets, have little reserve funds or knowledge of the world, and of what other producers are doing in other parts of the country: while those to whom they sell, are a small and compact body of wholesale dealers with wide knowledge and large reserve funds; and in consequence the sellers are at a great disadvantage in bargaining. And much the same is true of the women and children who sell hand-made lace, and of the garret masters of East London who sell furniture to large and powerful dealers.

Those sellers of commodities who are poor and numerous relatively to the purchasers are at a disadvantage in bargaining, in the same way as are the sellers of labour.

It is however certain that manual labourers as a class are at a disadvantage in bargaining; and that the disadvantage wherever it exists is likely to be cumulative in its

The disadvantage is cumulative in two ways.

effects. For though so long as there is any competition among employers at all, they are likely to bid for labour something not very much less than its real value to them, that is, something not very much less than the highest price they would pay rather than go on without it; yet anything that lowers wages tends to lower the efficiency of the labourer's work, and therefore to lower the price which the employer would rather pay than go without that work. The effects of the labourer's disadvantage in bargaining are therefore cumulative in two ways. It lowers his efficiency and lowers wages; and as we have seen, this lowers his efficiency as a worker, and thereby lowers the normal value of his labour. And in addition it diminishes his efficiency as a bargainer, and thus increases the chance that he will sell his labour for less than its normal value[1].

[1] On the subject of this section compare Book v. Ch. II. § 3, and the subsequent Note on Barter. Prof. Brentano was the first to direct public attention to several of the points discussed in this chapter.

CHAPTER VI.

DEMAND AND SUPPLY IN RELATION TO LABOUR, CONTINUED.

§ 1. THE next peculiarity in the action of demand and supply with regard to labour, which we have to consider, is closely connected with some of those we have already discussed. It consists in the length of time that is required to prepare and train labour for its work, and in the slowness of the returns which result from this training.

The fifth peculiarity of labour consists in the great length of time required for providing additional supplies of specialized ability.

We find the clearest signs of the deliberate adjustment of supply of expensively trained labour to the demand for it in the choice made by parents of occupations for their children, and in their efforts to raise their children into a higher grade than their own.

Adam Smith's comparison of the incomes earned by machinery and by a skilled worker

It was these chiefly that Adam Smith had in view when he said:—"When any expensive machine is erected, the extraordinary work to be performed by it before it is worn out, it must be expected, will replace the capital laid out upon it, with at least the ordinary profits. A man educated at the expense of much labour and time to any of those employments which require extraordinary dexterity and skill, may be compared to one of those expensive machines. The work which he learns to perform, it must be expected, over and above the usual wages of common labour, will replace to him the whole expense of his education, with at least the ordinary profits of an equally valuable capital. It must do this too in a reasonable time, regard being had to

the very uncertain duration of human life, in the same manner as to the more certain duration of the machine."

must be modified on account of the shortness of the lives of most machines;

But this statement is to be received only as a broad indication of general tendencies. For independently of the fact that in rearing and educating their children, parents are governed by motives different from those which induce a capitalist undertaker to erect a new machine, the period over which the earning power extends, is generally greater in the case of a man than of a machine; and therefore the circumstances by which the earnings are determined are less capable of being foreseen, and the adjustment of supply to demand is both slower and more imperfect.

though there are important exceptions.

It is true that some material goods last a very long time. Factories and houses, the main shafts of a mine and the embankments of a railway may have much longer lives than those of the men who made them. But finished commodities (goods of the First Order) with scarcely any exceptions, and material appliances for production (goods of Higher Orders) with but few exceptions last only a little while, and the supply of them can be greatly increased in a much shorter time than is required for adding largely to the supplies of efficient labour in the majority of skilled trades.

Parents in choosing trades for their children must look forward a whole generation, and their forecasts are very liable to error.

§ 2. Not much less than a generation elapses between the choice by parents of a skilled trade for one of their children, and his reaping the full results of their choice And meanwhile the character of the trade may have been almost revolutionized by changes, of which some probably threw long shadows before them, but others were such as could not have been foreseen even by the shrewdest persons and those best acquainted with the circumstances of the trade.

The working classes in nearly all parts of England are constantly on the look out for advantageous openings for the labour of themselves and their children; and they are eager to learn from friends and relations who have settled in other districts everything that they can as to the wages that are to be got in other trades. It is astonishing with what assiduity and sagacity many of them pursue their inquiries not only as to the money wages to be obtained in a trade,

but also as to all those incidental advantages and disadvantages which have been discussed in the last chapter but one. But it is very difficult to ascertain the causes that are likely to determine the distant future of the trades which they are selecting for their children; and there are not many who enter on this abstruse inquiry. The majority assume without a further thought that the earnings of each trade in their own time sufficiently indicate what they will be in the future; and therefore the supply of labour in a trade in one generation tends to conform to its earnings not in that but in the preceding generation.

Again some parents, observing that the earnings in one trade have been for some years rising relatively to others in the same grade, assume that the course of change is likely to continue in the same direction. But it often happens that the previous rise was due to temporary causes, and that, even if there had been no exceptional influx of labour into the trade, the rise would have been followed by a fall instead of a further rise: in such a case the consequence of that exceptional influx may be a supply of labour so excessive that for many years perhaps its earnings remain far below their normal level. Thus for instance the rise of miners' wages in the years ending with 1873 was misinterpreted and was the cause of the abnormally low wages that followed it for half a generation.

In this connection we must often take as our unit not a particular trade, but a whole grade of labour.

Next we have to recall the fact that, although there are some trades which are difficult of access except to the sons of those already in them, yet the majority draw recruits from the sons of those in other trades in the same grade[1]: and therefore when we consider the dependence of the supply of labour on the resources of those who bear the expenses of its education and training, we must often regard the whole grade, rather than any one trade, as our unit; and say that, in so far as the supply of labour is limited by the funds available for defraying its cost of production, the supply of labour in any grade is determined by the earnings of that grade in the last rather than in the present generation.

[1] Book IV. Ch. VI. § 8.

It must, however, be remembered that the birth-rate in every grade of society is determined by many causes, among which deliberate calculations of the future hold but a secondary place: though, even in a country in which tradition counts for as little as it does in modern England, a great influence is exerted by custom and public opinion which are themselves the outcome of the experience of past generations.

Allowance must however be made for the movements of adult labour,

§ 3. But we must not omit to notice those adjustments of the supply of labour to the demand for it, which are effected by movements of adults from one trade to another, one grade to another, and one place to another. The movements from one grade to another can seldom be on a very large scale; although it is true that exceptional opportunities may sometimes develop rapidly a great deal of latent ability among the lower grades. Thus, for instance, the sudden opening out of a new country, or such an event as the American War, will raise from the lower ranks of labour many men who bear themselves well in difficult and responsible posts.

which are of increasing importance in consequence of the increasing demand for general ability.

But the movements of adult labour from trade to trade and from place to place can in some cases be so large and so rapid as to reduce within a very short compass the period which is required to enable the supply of labour to adjust itself to the demand. That general ability[1] which is easily transferable from one trade to another, is every year rising in importance relatively to that manual skill and technical knowledge which are specialized to one branch of industry. And thus economic progress brings with it on the one hand a constantly increasing changefulness in the methods of industry, and therefore a constantly increasing difficulty in predicting the demand for labour of any kind a generation ahead; but on the other hand it brings also an increasing power of remedying such errors of adjustment as have been made.

§ 4. We have so far kept clear of the questions how far the earnings of all those already trained for any industry are

[1] See Book IV. Ch. VI. § 2.

to be regarded for the time as a Quasi-rent, and how far the earnings of those who have extraordinary natural abilities may be regarded as Rent. These questions are not without direct practical bearing: but they are of a highly technical character, and the general reader may prefer to pass over the remainder of the present chapter which will be devoted to them.

The remainder of this Chapter is of a technical character.

We have seen[1] that where we are considering the adjustment of a commodity to the demand for it during "short periods," that is, periods too short to enable any great change to be made in the material appliances for its production, we have to take for granted the existing stock of these appliances, almost as though they had been free gifts of nature. The income derived from them will indeed exert a controlling influence in the long run over the supply and the price of these appliances, and therefore over the supply and the price of the commodity itself: and the income that is required to call forth in the long run any given supply of these appliances is the "long period" supply price or (money) cost of production of that supply of them. But within "short periods" there is not time for the exercise of any considerable influence of this kind: whatever supplies of the appliances are available at the beginning of the short period will remain available without much increase or diminution during the whole of it: and the income derived from them may be regarded as a Quasi-rent.

Resumé of the distinction between long and short periods with reference to normal value.

The peculiarity in the relation of demand and supply with regard to labour which we are now studying arises, as we have seen, from the fact that labour is slowly produced and slowly worn out: and we have now to direct our attention to the fact that, in consequence of this peculiarity, we are compelled to take the term "long period" more strictly, and to regard it as generally implying a greater duration, when we are considering the relations of normal demand and supply for labour, than when we are considering them for ordinary commodities. There are many problems, the period of which is long enough to enable the supply of ordinary commodities, and even of most of the

A long period with regard to the supply of labour must generally be very long.

[1] Book v. Ch. iv. and Book vi. Ch. iii.

material appliances required for making them, to be adjusted to the demand; and long enough therefore to justify us in regarding the average prices of those commodities during the period as "normal," and as equal to their normal expenses of production in a fairly broad use of the term; while yet the period would not be long enough to allow the supply of labour to be adjusted at all well to the demand for it. The average earnings of labour during this period therefore would not be at all certain to give about a normal return to those who provided the labour; but they would rather have to be regarded as determined by the available stock of labour on the one hand, and the demand for it on the other. That is to say, they would have to be regarded as including an element of Quasi-rent. Let us consider this point more closely[1].

The Quasi-rent of labour is seen most clearly in the case of independent handicraftsmen;

§ 5. Market variations in the price of a commodity are governed by the temporary relations between demand and the stock that is in the market or within easy access of it. When the market price so determined is above its normal level, those who are able to bring new supplies into the market in time to take advantage of the high price, receive

[1] Of course the relations of demand and supply for a commodity cannot be "normal" in the broadest sense in which the term can be used, unless the supply of its factors of production, among which human agents are included, is likewise normally adjusted to the demand for them. And this requires a similar adjustment with regard to their factors of production, and so on backwards *ad infinitum*; and a perfect adjustment of this kind is incapable of being even conceived except with reference to a stationary state. (See Book VI. Ch. III. § 7, and Book VII. Ch. I. § 2.) But we do not often want to use the term "normal" in this sense. Speaking generally, a period of time is long enough to permit us to treat the forces of demand and supply with regard to, say, one particular kind of textile fabric as having fairly worked out their normal results, provided that it is long enough to cause the fluctuations from season to season in the supply of the raw material to counterbalance one another; that it is long enough to enable any new factories that may be wanted to be fitted with machinery suitable for making that fabric; and that it is long enough to enable any new hands that may be required, to be attracted from the general labour market of the textile districts. It is true, however, that if the producers of any commodity are not a mere branch of a trade, but the whole of the trade; if its production occupies all those who have the skill necessary for producing it, then changes in the supply of the commodity, and changes in the supply of the labour by which it is produced, must correspond closely to one another. And when this is the case, the adjustment of normal demand and supply may have to be reckoned for periods almost as long in the case of the commodity as in the case of labour.

an abnormally high reward. If they are small handicraftsmen working on their own account, the whole of this rise in price goes to increase their earnings, and these earnings include for the time a very high Quasi-rent of their stock of trained ability[1].

but it can also be traced under the modern system of industry.

In the modern industrial world however, those who undertake the risks of production and to whom the benefits of any rise in price, and the evils of any fall, come in the first instance, are capitalist undertakers of industry. Their net receipts in excess of the immediate outlay involved for making the commodity, that is its Prime (money) Cost[2], are a Quasi-rent determined for the time being from the capital invested in their business in various forms, including their own faculties and abilities. But the force of competition among the employers themselves, each desiring to extend his business, and to get for himself as much as possible of this high Quasi-rent, makes them consent to pay higher wages to their employés in order to obtain their services; and even if they act in concert, and refuse for a time any concession, a combination among their employés may force it from them under penalty of foregoing the harvest, which the favourable turn of the market is offering. The result generally is that before long a great part of the gains are being distributed among the employés; and that their earnings remain above the normal level so long as the prosperity lasts.

Illustration from the history of the coal trade.

Thus the high wages during the inflation of the coal trade to which we have referred, were determined for the time by the relation in which the demand for their services stood to the amount of skilled mining labour available, the unskilled labour imported into the trade being counted as equivalent to an amount of skilled labour of equal efficiency. Had it been impossible to import any such labour at all, the earnings of miners would have been limited only by the elasticity of the demand for coal on the one hand, and the

[1] If they have any considerable stock of trade implements, they are to that extent capitalists; and part of their income is Quasi-rent on this capital.

[2] See Book VI. Ch. VI. That part of the income got by the employers, which is really remuneration of their own labour, ought properly to be analysed further on the method adopted in § 6 of this Chapter.

gradual coming to age of the rising generation of miners on the other. As it was, men were drawn from other occupations which they were not eager to leave; for they could have got high wages by staying where they were, since the prosperity of the coal and iron trades was but the highest crest of a swelling tide of credit. These new men were unaccustomed to underground work; and its discomforts told heavily on them, while its dangers were increased by their want of technical knowledge; and their want of skill caused them to waste much of their strength. The limits therefore which their competition imposed on the rise of the Quasi-rent of miners' skill were not narrow.

When the tide turned, those of the new-comers who were least adapted for the work, left the mines; but even then the miners who remained were too many for the work to be done, and their wage fell till it reached that limit at which they could get more by selling their labour in other trades. And that limit was a low one; for the swollen tide of credit, which culminated in 1873, had undermined solid business, impaired the true foundations of prosperity, and left nearly every trade in a more or less unhealthy and depressed condition. The miners had therefore to sell their skilled labour in markets which were already over full, and in which their special skill counted for nothing.

In estimating the Quasi-rent of the labourer's skill, account must be taken not only of his wear and tear,

§ 6. We have already remarked that only part of the returns derived from an improvement which is being exhausted can be regarded as a Quasi-rent; for a sum equivalent to the exhaustion of the capital value of the improvement must be deducted from these returns, before they can be counted as net income of any kind. And similarly allowance must be made for the wear and tear of a machine, as well as for the cost of working it, before we can arrive at the Quasi-rent earned by it. But it is clear that the miner is liable to wear and tear as much as machinery is, and in his case also a deduction must be made from his earnings on account of wear and tear when the Quasi-rent of his special skill is being estimated.

But in his case there is a further difficulty. For while the owner of machinery does not suffer from its being kept

long at work when the expenses of working it, including wear and tear, have once been allowed for; the owner of skilled faculties suffers fatigue when they are kept long at work. If the miner has only four days' work in one week and earns £1, and in the next week he has six days' work, and earns £1. 10*s.*; only part of this extra 10*s.* can be regarded as Quasi-rent of his skill, for the remainder must be reckoned as the recompense of his additional fatigue (his wear and tear being supposed to be approximately the same in the two weeks). And at the time at which coal miners were earning no more than unskilled labourers could earn for equally fatiguing work, they were really getting no Quasi-rent for their skill.

but also of the fatigue involved in earning it.

§ 7. To conclude this part of our argument. The market price of everything, i.e. its price for *very* short periods, is determined solely by the relations in which the demand for it stands to the available stocks of it. Passing next to periods that are short relatively to the lives of machinery and other goods of the Second Order, we have found that the income earned by this machinery, &c., is determined by the relation in which the available supply of these appliances stands to the demand for them: and that this demand is "derived" from the demand for those goods of the first order which they are used in making. In these relatively short periods fluctuations in the price of the finished commodity generally precede and are the determining causes of fluctuations in the incomes earned by the material appliances for their production. And what is true of the material agents of production is true also of human agents: for in almost every trade fluctuations in wages follow, and do not precede fluctuations in the selling prices of the goods produced.

Conclusion, and restatement of the argument with regard to the Quasi-rent of labour.

But the incomes which are being earned by these agents of production, whether material or human, and those which appear likely to be earned by them in the future, exercise a ceaseless influence on those persons by whose action the future supplies of these agents are determined. There is a constant tendency towards a position of normal equilibrium, in which the supply of each of these agents shall stand in

such a relation to the demand for its services, as to give to those who have provided the supply a sufficient reward for their efforts and sacrifices. If the economic conditions of the country remained stationary sufficiently long, this tendency would realize itself in such an adjustment of supply to demand, that both machines and human beings would earn generally an amount that corresponded fairly with their cost of production; but as it is, the economic conditions of the country are constantly changing, and the point of adjustment of normal demand to normal supply is constantly shifting its position. There are indeed constant tendencies towards that point, as surely as, to use an old simile, there is a constant tendency of the surface of the sea towards a position of rest: but the moon and the sun are always shifting their places and always therefore changing the conditions by which the equilibrium of the sea is governed: and meanwhile there are ceaseless currents of the raging winds; the surface is always tending towards a position of normal equilibrium, but never attains it[1].

The extra income earned by some natural abilities may be regarded as a Rent,

§ 8. We may now discuss the question under what head to class those high incomes which are earned by extraordinary natural abilities. Since they are the free gift of nature, and not the result of the investment of human effort in an agent of production for the purpose of increasing its efficiency, there is a strong *primâ facie* cause for regarding them as of the nature of Rent. They have a claim to be treated as a Producers' Surplus resulting from the possession of a differential advantage for production, freely given by nature. This analogy has been noticed by a long series of writers[2]: it is

[1] Attention may again be called to the excellent studies of the theory of value that have been published by Austrian economists of our own generation, especially Professors Menger, Böhm-Bawerk, and Wieser.

Jevons advanced the extreme doctrine that "labour is essentially variable, so that its value must be determined by the value of the produce, not the value of the produce by that of the labour." (*Theory*, 2nd Edition, p. 179.) In spite of the prominence which he gave to this doctrine, it seems doubtful whether he held it in the unqualified form in which he stated it. As it stands, it appears to be incompatible with any scientific treatment of the fundamental problem of Distribution: and it is a significant fact that Jevons did not address himself to that problem in his chapter on Labour.

[2] See the references given in Book VI. Ch. III. § 1.

instructive and suggestive; but we must be on our guard against the temptation to extend it beyond its proper scope, and to apply it without those conditions which are required to make it true.

but not when we are considering the normal earnings of a trade.

The supply of labour in any occupation is determined, other things being equal, by the earnings of which it holds out the prospect. The chances of success and failure are to be taken together, much as are the chances of good and bad hauls by a fisherman, or of good and bad harvests by a farmer. The future of those who enter the occupation cannot be predicted with certainty: some of those who start with the least promise, turn out to have great latent ability, and, aided perhaps by good luck, they earn large fortunes; while others, who made a brilliant promise at starting, come to nothing. A youth when selecting an occupation, or his parents, when selecting one for him, are very far from leaving out of account the fortunes of successful men. These fortunes are therefore part of the price that is paid in the long run for the supply of labour and ability that seeks the occupation: they enter into the true or "long period" normal supply price of labour in it. They are not, as some writers have urged, a Rent which does not enter into that price, and which is rather determined by that price.

It is true that, if we confined our attention to short periods, we might fairly say that the incomes earned by the natural genius already existing among those who had specialized themselves in a certain trade, do not enter directly into the marginal expenses of production of the goods made in it, nor therefore into their price, but are rather to be regarded as a Quasi-rent determined by that price. But the same is true, as we have just seen, of the earnings of all others who are already in the trade and specialized to it; even though they seem to have no great ability or success.

The analogy is valid so long as we are merely analysing the source of the

The analogy is then valid so long as we are merely analysing the component parts of the income earned by an individual. There is some interest in the inquiry how much of the income of successful men is due to chance, how much to the good start that they have had in life, how much is profits on the capital invested in their special training, how much is the

incomes of individuals,

reward of exceptionally hard work, and how much remains as a Producers' Surplus or Rent resulting from the possession of rare natural gifts. But when we are considering the whole body of those engaged in any occupation, we are not at liberty to treat the exceptionally high earnings of successful men as Rent, without making allowance for the low earnings of those who fail.

and it might even be carried further, if persons were born with rare abilities specialized to particular branches of production.

It may be added that, if a certain class of people were marked out from their birth as having special gifts for some particular occupation, and for no other, so that they would be sure to seek that occupation in any case, then the earnings which such men would get might be left out of account as exceptional when we were considering the chances of success or failure for ordinary persons. But as a matter of fact that is not the case; for a great part of a person's success in any occupation depends on the development of talents and tastes, the strength of which cannot be clearly predicted until he has already committed himself to a choice of occupation. Such predictions are at least as fallible as those which a new settler can make as to the future fertility and advantages of situation of the various plots of land that are offered for his selection[1]. And partly for this reason the income derived from rare natural qualities bears a closer analogy to the Surplus produce from the holding of a settler who has made an exceptionally lucky selection, than to the rent of land in an old country. But land and human beings differ in so many respects, that even that analogy, if pursued very far, is apt to mislead: and the greatest caution is required in the application of the term Rent to the earnings of extraordinary ability.

[1] Cp. Book VI. Ch. III. § 2. The argument of the note on p. 490 is applicable to the Rent of natural abilities, but also to all Quasi-rents. When land capable of being used for producing one commodity is used for another, the supply price of the first is raised (though not by an amount dependent on the rent which the land would yield in this second use). So when existing factories, or persons with trained skill or with great natural ability, who could have been applied to produce one commodity, are applied for another, the supply price of the first is raised *for the time* through the narrowing of its sources of supply.

CHAPTER VII.

DEMAND AND SUPPLY IN RELATION TO CAPITAL.

§ 1. WE have already discussed some of the peculiarities in the mode of action of demand and supply in relation to capital. But it is necessary, at the expense of some repetition, to collect and weave together several rather troublesome threads of reasoning.

Résumé of the history of the motives of saving.

We have seen that the Growth of Wealth[1] has been governed by many causes, among which custom and unconscious habit played a great part in the early stages of history; while in the later a predominating influence has gradually been acquired by the deliberate intention to sacrifice ease or other enjoyments in the present in order to obtain them in the future. The causes of this change have been of two kinds. In the first place the progress of knowledge has constantly opened up new opportunities of investing present effort in roundabout methods of production which make the total results of that effort in the long run much greater than if it had been devoted to the direct attainment of immediate gratifications: progress has increased the economy of effort which can in the long run be obtained by making machinery and other appliances for use in Agriculture, in Manufacture, and above all in Transport. And secondly the character of man himself has changed: he has obtained a greater "telescopic" faculty; that is, he has acquired an increased power of realizing the future and bringing it clearly before his mind's eye: he is more prudent

[1] Book IV. Ch. VII.

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BOOK VII. CH. VI.

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CHAPTER VII.

DEMAND AND SUPPLY IN RELATION TO CAPITAL.

§ 1. We have already discussed some of the peculiarities in the mode of action of demand and supply in relation to capital. But it is necessary, at the expense of some repetition, to collect and weave together several rather troublesome threads of reasoning.

Résumé of the history of the motives of saving.

We have seen that the Growth of Wealth[1] has been governed by many causes, among which custom and unconscious habit played a great part in the early stages of history; while in the later a predominating influence has gradually been acquired by the deliberate intention to sacrifice ease or other enjoyments in the present in order to obtain them in the future. The causes of this change have been of two kinds. In the first place the progress of knowledge has constantly opened up new opportunities of investing present effort in roundabout methods of production which make the total results of that effort in the long run much greater than if it had been devoted to the direct attainment of immediate gratifications: progress has increased the economy of effort which can in the long run be obtained by making machinery and other appliances for use in Agriculture, in Manufacture, and above all in Transport. And secondly the character of man himself has changed: he has obtained a greater "telescopic" faculty; that is, he has acquired an increased power of realizing the future and bringing it clearly before his mind's eye: he is more prudent

[1] Book IV. Ch. VII.

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to remark that much present wealth consists in the ownership of what was originally a free gift of nature: for free gifts of nature may be taken to be excluded from *accumulated* wealth. But we cannot evade the fact that a great part of accumulated wealth was derived from the rent of land or from the profits of business; and that its present owners have obtained their rights to it chiefly by inheritance.

But the surplus offered by deferred enjoyments is always the result of waiting.

There is however no corresponding qualification to the statement that that surplus benefit which a person gets in the long run by postponing enjoyment, and which is measured by the rate of interest (subject as we have seen to certain conditions), is the reward of *waiting*. He may have obtained the *de facto* possession of property by inheritance or by any other means, moral or immoral, legal or illegal. But if, having the power to consume that property in immediate gratifications, he chooses to put it in such a form as to afford him deferred gratifications, then any superiority there may be in these deferred gratifications over those immediate ones is the reward of his waiting. When he lends out the wealth on a secure loan the net payment which he receives for the use of the wealth may be regarded as affording a numerical measure of that reward[1].

[1] Prof. Böhm-Bawerk (*Kapitalzins*, II. p. 101) raises the question whether capital is an independent factor of production in addition to land (i.e. natural agents of all kinds) and labour; and answers it in the negative. The question seems to be to some extent one of words: but on the whole it is perhaps best to say that there are three factors of production, land, labour, and the sacrifice involved in waiting.

Von Thünen (*Der isolirte Staat*, II. 1. pp. 127, &c.) dwells instructively on the fact that capital is the result of labour, as well as a possible substitute for it. When discussing the effects of improvements in shoemaking machinery (Book VII. Ch. III. § 5), our attention was called to the fact that the substitution of capital for labour in one trade generally involved an increased use of another kind of labour; and that the substitution really was in part that of one kind of labour for another. The practical importance of this point will appear more clearly later on.

Opportunity may be taken here of referring the reader to Prof. Böhm-Bawerk's book for a full and able discussion of the history and present position of the economic theory of interest. But perhaps the question may be raised whether he has not somewhat exaggerated the difference between his own position and that of his predecessors; whether the sharp contrasts which he finds between the doctrines of successive schools really existed; and whether those doctrines

§ 4. We have said that a person will not *as a rule* choose deferred in place of present enjoyments, unless he expects them to be greater in the long run. But this rule is not without exceptions. A man of provident and unselfish temper when earning a high income would prefer to put away some of it for the future needs of himself and his family, even if he knew of no safe way of investing it at interest; and had to hoard it at great trouble and risk; or, and this comes to the same thing, if he had to pay some one else for taking care of it for him, or, as we may say, to invest it at a negative rate of interest[1].

Some people would indeed save something, even if they had to pay for the custody of their wealth.

All this is true. But a similar statement is true with regard to labour. Some exertion is pleasurable, at least to those who are in sound moral and physical health; political prisoners for instance generally regard it as a favour to be allowed to do a little work; they crave some rest from the wearing strain of enforced idleness. And yet in the ordinary course of business all work has to be paid for, because that part of it which gives more pleasure than pain to the worker, is worth just as much to the purchasers of the labour as that which he does when he has already worked off his superabundant energy, and would no longer work without some special inducement to do so.

But as the workman is paid for all his labour, though some of it may be pleasurable,

generally as fragmentary and one-sided as he thinks. It does not appear certain that there is much of vital importance in the Theory of Interest as it is known now, which was not recognized with more or less distinctness by all the leading economists of the present century. Some have emphasized one side and others another; and Prof. Böhm-Bawerk has perhaps been a little too ready to assume that they ignored altogether those sides which they did not accentuate. They did not however, it must be admitted, make clear the mutual relations of the several sides of the theory. To that difficult and important task much work has been given during the last few years by Profs. Jevons, Menger, Wieser, Pantaleoni, Sidgwick, Walker, Clark, Giddings, and Patten, by Mr Stuart Wood, Mr Sidney Webb and others; and especially by Prof. Böhm-Bawerk himself. And one more attempt to grapple with it lies before the reader now.

[1] Again some people rate the pleasures of expectation highly; they like to "have something to look forward to"; they resemble the children who take the plums out of their pudding and put them off till the last. On the other hand it must be recollected that *absolute* security exists only with regard to the present. No deferred pleasure is absolutely secure; for life itself is uncertain. Even if there were a bank absolutely certain to return the deposits lent to it on demand, no one who deposited there money that he could have spent today, would be quite certain of living to demand it himself tomorrow.

so, since the supply of capital is still insufficient for all needs, a reward is required by those least willing to save, and an equal reward is claimed by all others.

And so with regard to the payment for the use of capital. We can perhaps imagine a state of society in which people were so provident and the existing stock of capital so large that roundabout methods of production had been already substituted for direct methods in every case in which they were more efficient: and then those who wanted to defer their pleasures, might have to pay to others a charge for keeping their wealth in safe custody. But there is no present likelihood of such a state of things: the growth of accumulated wealth, rapid as it is, shows no signs of overtaking the growth of the scope for the employment of human effort in such ways as will yield an increased return of gratification in the long run; the condition of this return being that part of the effort is spent in purchasing the means of gratification a long time beforehand. And the rate of interest cannot therefore fall below that limit at which it offers only just sufficient inducement to those who are on the margin of doubt whether to save or not. For if it did there would be a gradual shrinkage of capital relatively to the growing demand for it: its marginal utility would rise in consequence of this relative scarcity, and therefore the rate of interest which is paid as the price of loans would rise also[1].

In early stages of civilization the abuses of loans at interest may exceed their uses;

§ 5. In primitive communities there have been few openings for the employment of fresh capital in enterprise, and any one who had property that he did not need for his own immediate use, would seldom forego much by lending it on good security to others without charging any interest for the loan. Those who borrowed were generally the poor and the weak, people whose needs were urgent and whose powers of bargaining were very small. Those who lent were as a rule either people who spared freely of their superfluity to help their distressed neighbours, or else professional money lenders. To these last the poor man had resort in his need; and they frequently made a cruel use of their power, entangling him

[1] On the subject of this section compare the latter part of Book IV. Ch. VII. § 1. The suggestion that the rate of interest may conceivably become a negative quantity has been discussed by Prof. Foxwell in a paper on *Some Social aspects of Banking*, read before the Bankers' Institute in Jan. 1886.

in meshes from which he could not escape without great suffering and perhaps the loss of the personal freedom of himself or his children. Not only uneducated people, but the Sages of early times, the Fathers of the Mediæval Church, and the English rulers of India in our own time, have been inclined to say, that money lenders "traffic in other people's misfortunes, seeking gain through their adversity: under the pretence of compassion they dig a pit for the oppressed[1]." In such a state of society it may be a question for discussion, whether it is to the public advantage that people should be encouraged to borrow wealth under a contract to return it with increase after a time: whether such contracts taken one with another do not on the whole diminish rather than increase the sum total of human happiness.

and this fact retarded the growth of clear notions as to the nature of the services rendered by capital.

But unfortunately attempts were made to solve this difficult and important practical question by a philosophical distinction between the interest for the loan of money and the rental of material wealth. Aristotle had said that money was barren, and that to derive interest from lending it out was to put it to an unnatural use[2]. And following his lead the scholastic writers argued with much labour and ingenuity that he who lent out a house or a horse might charge for its use, because he gave up the enjoyment of a thing that was directly productive of benefit. But they found no similar excuse for the interest on money: that, they said, was wrong, because it was a charge for a service which did not cost the lender anything[3].

[1] From St Chrysostom's Fifth Homily. On this subject compare Bentham *On Usury*, Mr Lecky's *Rationalism in Europe*, the economic histories of Dr Cunningham, Prof. Ashley and Kautz, the article on "Usury" by Prof. Nicholson in the *Encyclopædia Britannica*, Knies' *Politische Œkonomie*, and Roscher's *Political Economy*, and lastly Mr Thorburn's *Musalmans and Money-lenders in the Punjab*. The sentiment against usury had its origin in tribal relationships, in many other cases besides that of the Israelites, perhaps in all cases. And, as Cliff-Leslie remarks, (*Essays*, 2nd edition, p. 244):—It was "inherited from pre-historic times when the members of each community still regarded themselves as kinsmen; when communism in property existed at least in practice, and no one who had more than he needed could refuse to share his superfluous wealth with a fellow-tribesman in want."

[2] *Politics*, I. 10. He laid stress on the fact that the Greek word for interest (τόκος) implied that it was the offspring born of money.

[3] They also made a distinction between *hiring* things which were themselves

Mediæval confusion of thought on this subject.

Now it is true that if the loan really cost him nothing, if he could have made no use of the money himself, if he was rich and the borrower poor and needy, then no doubt it might fairly be argued that he was morally bound to lend his money gratis. But on the same grounds he would have been bound to lend without charge to a poor neighbour a house which he would not himself inhabit, or a horse for a day's work of which he had himself no need. The doctrine of these writers therefore really implied, and in fact it did convey to people's minds the mischievous fallacy that —independently of the special circumstances of the borrower and the lender—the loan of money, i.e. of command over things in general, is not a sacrifice on the part of the lender and a benefit to the borrower, of the same kind as the loan of a particular commodity: they obscured the fact that he who borrows money can buy, for instance, a young horse, whose services he can use, and whom he can sell, when the loan has to be returned, at as good a price as he paid for him. The lender gives up the power of doing this, the borrower acquires it: there is no substantial difference between the loan of the purchase price of a horse and the loan of a horse[1].

In the modern world similar causes have promoted the spread of erroneous analysis.

History has in part repeated itself: and in the modern Western world a new reforming impulse has derived strength from, and given strength to another erroneous analysis of the nature of interest. As civilization has progressed, the loans of wealth to needy people have become steadily more rare, and a less important part of the whole; while the loans of capital for productive use in business have increased at an ever increasing rate, and now form the largest body of transactions recorded in history. And in consequence it is

to be returned, and *borrowing* things the equivalent of which only had to be returned. This distinction, however, though interesting from an analytical point of view, has very little practical importance.

[1] Dr Cunningham has described well the subtleties by which the Mediæval Church explained away her prohibition of loans at interest, in most of those cases in which the prohibition would have been seriously injurious to the body politic. These subtleties resemble the legal fictions by which the judges have gradually explained away the wording of laws, the natural interpretation of which seemed likely to be mischievous. In both cases some practical evil has been avoided at the expense of inculcating habits of confused and insincere thought.

not the borrowers who are now regarded as the subjects of oppression: but a grievance has been found in the fact that all producers, whether working with borrowed capital or not, reckon interest on the capital used by them as among the expenses which they require to have returned to them in the long run in the price of their wares as a condition of their continuing business. On this account, and on account of the openings which the present industrial system offers of amassing large "fortunes," as is appropriately said, by sustained good fortune in speculation, it has been argued that the payment of interest in modern times oppresses the working classes indirectly though not directly; and that it deprives them of their fair share of the benefits resulting from the growth of knowledge. And hence is derived the practical conclusion that it would be for the general happiness, and therefore right, that no private person should be allowed to own any of the means of production (goods of the second and higher Orders), nor any direct means of enjoyment (goods of the first Order) save such as he needs for his own use.

Connection between the practical proposals of Karl Marx and his doctrine of value.

This practical conclusion has been supported by other arguments which will claim our attention; but at present we are only concerned with the doctrine that has been used by William Thompson[1], Karl Marx, Rodbertus and others in support of it. They have argued that the value of a thing consists exclusively of the labour that has been spent in making it; and that therefore the payment of interest is a robbery of labour. For their premiss they claim the authority of Ricardo; though it is really as opposed to the general tenor of his theory of value as it is to common sense (see the "Note on Ricardo's doctrine of Cost of Production in relation to Value," at the end of Book VI.). But in fact their conclusion is itself silently assumed in their attempt to establish their preliminary proposition; and their argument is thus a complete circle.

[1] Dr Anton Menger, in *Das Recht auf den vollen Arbeitsertrag* has shown well how Rodbertus and Karl Marx have borrowed both their practical conclusions as to the nationalization of the means of production, and the theoretical basis of their arguments, from earlier works, and especially from William Thompson's *Principles of the Distribution of Wealth most conducive to human happiness*, 1824.

For if it be true that the postponement of gratifications involves in general a sacrifice on the part of him who postpones, just as additional effort does on the part of him who labours; and if it be true that this postponement enables man to use roundabout methods of production by which the aggregate volume of human enjoyments is increased, as certainly as it would be by an increase of labour; then it cannot be true that the value of a thing depends simply on the amount of labour spent on it. Every attempt to establish this premiss has necessarily assumed implicitly that the service performed by capital is a "free" good, rendered without sacrifice, and therefore needing no interest as a reward to induce its continuance; and this is the very conclusion which the premiss is wanted to prove. The strength of Karl Marx's sympathies with suffering must always claim our respect: but what he regarded as the scientific foundation of his practical proposals appears to be little more than a series of arguments to the effect that there is no economic justification for interest, while that result has been all along latent in his premisses, though shrouded by the mysterious Hegelian phrases in which he delighted.

The line of division between Interest and the other elements of which Profit is composed cannot always be easily drawn.

§ 6. We have spoken of the income derived from capital as Interest. But of course the total income that is derived from any use of capital is Profit: and this is commonly regarded as consisting of three parts. One is the remuneration of the labour of managing the capital, or Earnings of Management; another is Insurance against the risks involved in that particular use of it; and it is only what remains that is properly to be regarded as Net interest. We shall have soon to carry this analysis somewhat further: but first we may pause to notice that much which is commonly called Interest is not interest properly so called, but contains some parts of the other two elements of profit.

The gross interest paid by the borrower includes some Insurance against risk and

When there is any risk that the interest and the capital will not be duly paid, a special allowance must of course be made under this head for insurance against risk. This is obvious, and is not often overlooked. But it is less obvious that every loan causes some trouble to the lender; and that when from the nature of the case, the loan involves con-

siderable risks, a great deal of trouble has often to be taken to keep these risks as small as possible; and that then a great part of what appears to the borrower as interest, is from the point of view of the lender, Earnings of Management of a troublesome business.

Earnings of Management, and therefore varies with the circumstances of each loan.

At the present time the net interest on capital in England is a little over three per cent. per annum; for no more than that can be obtained by investing in such first rate Stock Exchange securities as yield to the owner a secure income without appreciable trouble or expense on his part. And when we find capable business men borrowing on perfectly secure mortgages, at (say) four per cent., we may regard that gross interest of four per cent. as consisting of net interest, or interest proper, to the extent of a little over three per cent., and of Earnings of Management by the lenders to the extent of rather less than one per cent.[1]

Cases in which gross interest is very high.

Again, a pawnbroker's business involves next to no risk; but his loans are generally made at the rate of 25 per cent. per annum, or more; the greater part of which is really Earnings of Management of a troublesome business. Or to take a more extreme case, there are men in London and Paris and probably elsewhere, who make a living by lending money to costermongers. The money is often lent at the beginning of the day for the purchase of fruit, &c., and returned at the end of the day, when the sales are over, at a profit of ten per cent.: there is little risk in the trade; the money so lent is seldom lost. Now a farthing invested at ten per cent. a day would amount to a billion pounds at the end of a year. But no one can become rich by lending to costermongers; because no one can lend much in this way.

[1] Mortgages for long periods are sometimes more sought after by lenders than those for short periods, and sometimes less. The former save the trouble of frequent renewal, but they deprive the lender of command over his money for a long time, and thus limit his freedom. First class Stock Exchange securities combine the advantages of very long and very short mortgages. For their holder can hold them as long as he likes, and can convert them into money when he will; though if at the time Credit is shaken and other people want ready money, he will have to sell at a loss. If they could always be realized without a loss, and if there were no brokers' commissions to be paid on buying and selling, they would not yield a higher income than money lent "on call" at the lender's choice of time; and that will always be less than the interest on loans for any fixed period, short or long.

The so-called interest on the loans really consist almost entirely of earnings of a kind of work for which few capitalists have a taste.

Further analysis of gross interest.

§ 7. It is then necessary to analyse a little more carefully the extra risks which are introduced into business when much of the capital used in it has been borrowed. Let us suppose that two men are carrying on similar businesses, the one working with his own the other chiefly with borrowed capital.

Trade Risks.

There is one set of risks which is common to both; these may be described as the TRADE RISKS of the particular business in which they are engaged. They arise from fluctuations in the markets for their raw materials and finished goods, from unforeseen changes of fashion, from new inventions, from the incursion of new and powerful rivals into their respective neighbourhoods, and so on. But there is another set of risks, the burden of which has to be borne by the man working with borrowed capital, and not by the other; and we may call them PERSONAL RISKS. For he who lends capital to be used by another for trade purposes, has to charge a high interest as insurance against the chances of some flaw or deficiency in the borrower's personal character or ability.

Personal Risks.

Analysis of Personal risks.

The borrower may be less able than he appears, less energetic, or less honest. He has not the same inducements as a man working with his own capital has to look failure straight in the face, and withdraw from a speculative enterprise as soon as it shows signs of going against him. On the contrary, should his standard of honour not be high, he may be not very keen of sight as to his losses. For if he withdraws at once, he will have lost all he has of his own; and if he allows the speculation to run on, any loss there may be will fall on his creditors; and any gain will come to him. Many creditors lose through semifraudulent inertness of this kind on the part of their debtors, and a few lose through deliberate fraud: the debtor for instance may conceal in subtle ways the property that is really his creditors', until, his bankruptcy being over, and he having entered on a new business career, he can bring gradually

into play his secret reserve funds without exciting overmuch suspicion.

Gross interest does not tend to equality.

The price then that the borrower has to pay for the loan of capital, and which he regards as interest, is from the point of view of the lender more properly to be regarded as profits: for it includes insurance against risks which are often very heavy, and Earnings of Management for the task, which is often very arduous, of keeping those risks as small as possible. Variations in the nature of these risks and of the task of management will of course occasion corresponding variations in the gross interest so-called that is paid for the use of money. The tendency of competition is therefore not towards equalizing this *gross* interest: on the contrary, the more thoroughly lenders and borrowers understand their business, the more certainly will some classes of borrowers obtain loans at a lower rate than others.

But the agencies of the modern Money Market tend to equalize rapidly the rates of *net* interest on different uses of capital.

We must defer to a later stage our study of the marvellously efficient organization of the modern Money Market by which capital is transferred from one place where it is superabundant to another, where it is wanted; or from one trade that is in the process of contraction to another which is being expanded: and at present we must be contented to take it for granted that a very small difference between the rates of *net* interest to be got on the loan of capital in two different modes of investment in the same western country will cause capital to flow freely, though perhaps by indirect channels, from the one to the other.

It is true that if either of the investments is on a small scale, and few people know much about it, the flow of capital may be slow. One person for instance may be paying five per cent. on a small mortgage, while his neighbour is paying four per cent on a mortgage which offers no better security. But in all large affairs the rate of Net interest (so far as it can be disentangled from the other elements of profits), is nearly the same all over England. And further the divergencies between the average rates of Net interest in different countries of the Western world, are rapidly diminishing as a result of the general growth of intercourse, and especially of the fact that the leading capitalists of

all these countries hold large quantities of Stock-Exchange securities which yield the same revenue and are sold at practically the same price on the same day all over the world[1].

Résumé: we have on the one hand the causes determining the supply of capital;

§ 8. We may now sum up this part of the argument. We have seen that the higher the benefits to be derived from the possession of wealth, whether in the form of trade-capital or any other; the greater, as a rule, are the inducements to work and to wait in order to accumulate wealth. This rule is, as Sir Josiah Child pointed out long ago, not without exceptions[2]; and perhaps these exceptions are increasing in importance. But there is no immediate prospect of their becoming so large as to reverse the rule. The increase of real income above the mere necessaries of life is constantly augmenting the *power* to save, an increased regard for the future is increasing the *will* to save; and under the action of these two causes together the rates of growth of wealth are increasing faster than ever now, in spite of the fact that, as a result of this increase, the rate of interest is falling. But it is still true that other things being equal an increase in the rate of interest tends to accelerate saving, and to increase the aggregate stock of capital.

[1] When we come to discuss the Money Market we shall have to study the cases which render the supply of capital for immediate use much larger at some times than at others; and which at certain times make bankers or others contented with an extremely low rate of interest, if the security be good and they can get their money back into their own hands quickly in case of need (compare the preceding note). At such times they are willing to lend for short periods on security that is not first-rate at a rate of interest that is not very high. For their risks of loss are much reduced by their power of refusing to renew the loan, if they notice any indication of weakness on the part of the borrower; and since short loans on good security are fetching only a nominal price, nearly the whole of what interest they get from him is insurance against risk and remuneration of their own trouble. But on the other hand such loans are not really very cheap to the borrower. They surround him by risks, to avoid which he would often be willing to pay a much higher rate of interest. For if any misfortune should injure his credit, or if a disturbance of the money market should cause a temporary scarcity of loanable capital, he may be quickly brought into great straits. He may not be able to obtain a renewal of the loan on moderate, or even on any terms, and may thus be cut short in his most hopeful enterprises. One of the chief symptoms of an impending commercial crisis is a rapid succession of forced sales at a loss by those who have been trading with capital borrowed for short periods. Loans to traders at nominally low rates of interest, if for short periods only, do not therefore really form exceptions to the general rule discussed in the text.

[2] See Book IV. Ch. VII § 9.

and on the other hand those determining the demand.

Passing now from the causes which determine the supply of capital to those which determine the demand, we have to move with more caution because interest is but one element of profit: and the chief demand for capital is part of a joint demand for capital and business ability. But we may call to mind the broader aspects of the demand for capital, leaving for the following chapters its relations to the demand for business ability.

We have found[1] that in general each man, taking account of his means, will push the investment of capital in his business in each several direction until what appears in his judgment to be the margin of profitableness is reached; that is, until there seems to him no good reason for thinking that the gains resulting from any further investment in that particular direction would compensate him for his outlay. The margin of profitableness, we have seen, is not to be regarded as a mere point on any one fixed line of possible investment; but as a boundary line of irregular shape cutting one after another every possible line of investment, and this boundary line moves irregularly outwards in all directions when there is a fall in the rate of interest at which extra capital can be obtained.

And as with borrowings for productive purposes, so with those of spendthrifts or Governments who mortgage their future resources in order to obtain the means of immediate expenditure. It is true that their actions are often but little governed by cool calculation, and that they often decide how much they want to borrow with but little reference to the price they will have to pay for the loan; but still the rate of interest exercises a perceptible influence on borrowings even of this kind.

The rate of interest is determined in the long-run by these two sets of forces of

Thus then interest, being the price paid for the use of capital in any market, tends, like other values, towards an equilibrium level; and that equilibrium position is such that the aggregate demand for capital in that market, at that rate of interest, is equal to the aggregate stock forthcoming there at that rate. If the market, which we are considering, is a small one—say a single town, or a single trade in a

[1] Book VI. Ch. V. § 3.

supply and demand respectively.

progressive country—an increased demand for capital in it, will not be able to raise the price paid there for loans much, because surrounding districts and trades will be able and willing to pour into that market supplies of new capital large relatively to the demand. But if we are considering the whole world, or even the whole of a large country as one market for capital, we cannot regard the aggregate supply of it as altered quickly and to a considerable extent by a change in the rate of interest.

But we must recal the relation between the interest on capital and its Quasi-rent.

§ 9. But here our attention should again be directed to the very limited sense in which alone we can properly speak of the rate of interest on any save new investments of capital. If, as indicated in a previous section, we strip away from gross interest those elements that do not properly belong to interest, the remainder, or net interest, is approximately uniform at three per cent. throughout the whole country; and we may estimate that a trade capital of some seven thousand millions is invested in the different trades of the country at about three per cent. net interest. But this method of speaking, though convenient and justifiable for many purposes, is not accurate. What ought to be said is that the rate of net interest on the marginal investments, or on the investments of new capital in each of those trades, is about three per cent.; and that the aggregate *net* income rendered by the whole of the trade-capital invested in the various trades is such that, if capitalized at 33 years' purchase (that is on the basis of interest at three per cent.), it would amount to some seven thousand million pounds. For the capital already invested in improving land and erecting buildings, and in making railways and machinery, has its value determined by the net income which it will produce: and if its prospective income-yielding power should diminish, its value would fall accordingly and would be the capitalized value of that smaller income after allowing for depreciation[1].

Strictly speaking we can measure the rate of interest only on new investments: because the value of old investments is determined by estimating their probable future Quasi-rents and capitalizing that.

And the range of those investments which may be regarded as new depends on the length of the period over which the action of the economic forces which we are studying

[1] The same result is of course got by aggregating the discounted values of all its probable future net incomes on the plan discussed in Bk. VI. Ch. V. § 2.

extends. "The shorter the period which we are considering, and the slower the process of production of those appliances, the less part will variations in the income derived from them play in checking or increasing the supply of the commodity produced by them, and in raising or lowering its supply price; and the more nearly true will it be that, for the period under discussion, the income to be derived from them is to be regarded as a Producer's Surplus or Quasi-rent."[1]

NOTE ON THE PURCHASING POWER OF MONEY IN RELATION TO THE REAL RATE OF INTEREST.

Throughout the present volume we are supposing, in the absence of any special statement to the contrary, that all values are expressed in terms of money of fixed purchasing power, just as astronomers have taught us to determine the beginning or the ending of the day with reference not to the actual sun but to a *mean sun* which is supposed to move uniformly through the heavens. (See Book I. Ch. I. § 5.) Further the influences which changes in the purchasing power of money do actually exert on the terms on which loans are arranged, are most conspicuous in the market for short loans—a market which differs in many of its incidents from any other; and for this reason, if for no other, a full discussion of these influences must be deferred. Nevertheless it seems right to notice them here in passing, at all events as a point of abstract theory. For the rate of interest which the borrower is willing to pay measures the benefits that he expects to derive from the use of the capital only on the assumption that the money has the same purchasing power when it is borrowed and when it is returned.

Let us suppose, for instance, that a man borrows £100 under contract to pay back £105 at the end of the year. If meanwhile the purchasing power of money has risen 10 per cent. (or which is the same thing, general prices have fallen in the ratio of ten to eleven), he cannot get the £105 which he has to pay back without selling one-tenth more commodities than would have been sufficient for the purpose at the beginning of the year. Assuming, that is, that the things which he handles have not changed in value relatively to things in general, he must sell at the end of the year commodities which would have cost him £115. 10*s*. at the beginning, in order to pay back with interest his loan of £100; and therefore he has lost ground unless the commodities have increased under his hands 15½ per cent. While nominally paying 5 per cent. for the use of his money, he has really been paying 15½ per cent.

On the other hand, if prices had risen so much that the purchasing power of money had fallen 10 per cent. during the year, and he

[1] Book VI. Ch. III. § 7.

could get £10 for things which cost him £9 at the beginning of the year; then, instead of paying 5 per cent. for the loan, he would really be paid 5½ per cent. for taking charge of the money.

When we come to discuss the causes of alternating periods of inflation and depression of commercial activity we shall find that they are intimately connected with those variations in the real rate of interest which are caused by changes in the purchasing power of money. For when prices are likely to rise, people rush to borrow money and buy goods, and thus help prices to rise; business is inflated, it is managed recklessly and wastefully; those working on borrowed capital pay back less real value than they borrowed, and enrich themselves at the expense of the community. When afterwards credit is shaken and prices begin to fall, everyone wants to get rid of commodities and get hold of money which is rapidly rising in value; this makes prices fall all the faster, and the further fall makes credit shrink even more, and thus for a long time prices fall because prices have fallen.

Again, a probable change in the purchasing power of money affects the relative values of Stock Exchange securities which will pay a fixed rate of interest, and of those which represent a direct share in property. The shareholders of a railway are the owners of a property the real value of which is determined in the long run by the services it is capable of rendering; and the excess of the real value of its receipts over that of its working expenses will be very little affected in the long run by changes in the general level of prices. But if there should be a general rise in the purchasing power of money, the real value of the "interest" which it pays on its debentures will rise in the same proportion; and the real value of what remains to be divided among its shareholders will be correspondingly diminished. Hence if we had reason to believe that there would be a continued rise in the purchasing power of money, there would be a double cause for preferring a debenture bond to an ordinary share which would appear of just equal value with it, and if we took no account of changes in the purchasing power of money. Calculations of this kind exercise a direct influence over the actions of only very far seeing persons: but we shall presently find that their indirect influence is considerable, and is clearly perceptible in the prices of land and of some kinds of Stock Exchange securities. [See an article by Mr de Haas, translated in the London *Statistical Journal* for March, 1889; also an article by the present writer in the *Contemporary Review* for March, 1877, in which it is argued that fluctuations in prices are caused only to a very slight extent by fluctuations in the supply of the precious metals; and that they would not be much diminished by the adoption of gold and silver instead of gold as the basis of our currency. The evils which they cause are however so great, that it is worth while to do much in order to diminish them a little.]

CHAPTER VIII.

DEMAND AND SUPPLY IN RELATION TO CAPITAL, BUSINESS POWER AND INDUSTRIAL ORGANIZATION.

The inquiry of this and the following chapters

§ 1. In the concluding Chapter of Book IV. we saw that the supply of business power in command of capital may be regarded as consisting of three elements, the supply of capital, the supply of the business power to manage it, and the supply of the organization by which the two are brought together and made effective for production. We have now to carry this analysis further; and to study more closely the nature of the services which the business undertaker renders to society, and the rewards of this work.

must be prefaced by a caution.

But we must first pause a little to draw a distinction between the direct and indirect services which the employer renders, for it is with the former only that we are concerned here. The purpose of this preliminary section is to guard against any applications beyond their proper scope of the argument in this and the following chapters that the rewards of every business undertaker tend to be proportionate to the *direct* services he renders to the community.

The immediate efficiency of any form of business management plays

As we have already seen[1] the Struggle for Survival tends to cause those methods of organization to prevail which are best fitted to *thrive in* their environment; but it is not to be inferred that they are those best fitted to *benefit* their environment, unless it should so happen that all the benefits

[1] Book IV. Ch. VIII.

the chief part in determining its success in the struggle for survival.

which they confer, whether direct or indirect, are rewarded in like proportion. And in fact this is not so. For as a general rule the Law of Substitution—which is nothing more than a special and limited application of the Law of Survival of the Fittest—tends to make one method of industrial organization supplant another when it offers a direct and immediate service at a lower price. The indirect and ultimate services which either will render have, as a general rule, little or no weight in the balance.

There are some important exceptions to this general rule.

There are indeed some important exceptions to this rule; and they are very instructive. For instance, any business such as that of a railway company, which has a long future before it, may be able to afford a great outlay in the present for the sake of a high income in the distant future; and in that future it may reckon on reaping part of the fruits of those indirect benefits which it confers by developing the resources of its neighbourhood[1].

So again when any new business is being started, the profits are likely to come in slowly for a time. But meanwhile a good business connection may be acquired; and the expectation of these ultimate gains may keep a good heart in those who are undertaking it; and they may be able to succeed in the long run. They may succeed: but also they may fail. We constantly see promising businesses, which, if they could only have grown past the difficulties of starting, might probably have rendered great services to society, and reaped the reward for those services; but which are stopped short by the overshadowing influences of those who are already strong.

But the rule is far-reaching.

The action of the Law of Substitution then often enables those who are able to offer immediate and direct services at a low price, to supplant others, whose total services to society if they had prospered at first would have as much exceeded those of the rivals by whom they are kept down, as an oak sapling might have ultimately over-topped the brambles, amidst which it tried in vain to raise its head. Even when the conflict lies between two well-established businesses, and is irreproachable in its methods, a great

[1] Comp. Book III. Ch. III. § 7, Book V. Ch. VII. and Book VI. Ch. IV.

part of the success of the one may represent not net gain to the world, but a transference of success to itself from its rival. And if this victory is gained by undergoing present sacrifices and selling at a low price, not in order to obtain a great power of doing good work in the future, but in order to drive from the field rivals with smaller capital; and especially if this end is pursued by a Trust or other combination, there is no *prima facie* cause for thinking that the result has been beneficial. And yet we must not forget that even in such cases as this, the victors in the struggle for survival being able to produce on a large scale, and so to avail themselves of great economies in manufacture and in marketing, may find that the price which gives them the highest aggregate monopoly profits may be below that previously ruling[1].

Again, to say nothing of those cases in which one employer elbows his way on, by means of exceptional skill and tenacity in driving hard bargains with his men, we find in almost every trade cases in which the employer may have to choose between two methods of work, one of which would give him the greater pecuniary gain; while the other would tend the more strongly to develop the higher faculties of his employés and add much in the long run to the productive efficiency, the wealth and the higher well-being of the nation. Unfortunately the tendency of the Law of Substitution under existing social and economic institutions is frequently to make the former method prevail.

We may then pass from these preliminary explanations, having made it clear that we are not at present dealing with the question whether the existing industrial organization of society is the best conceivable, or even the best attainable; and that the scope of our inquiry is now limited to a study of the action of the Law of Substitution in determining the earnings of business undertaking and management under existing social institutions.

§ 2. We have already noticed that a great part of the work done by the head of a small business himself, is

The action of the Law of Substi-

[1] Comp. Book v. Ch. VIII. § 5. Comp. Book VII. Ch. v. § 4.

tution in controlling Earnings of Management, illustrated by the demand for the services of foremen as compared with those of ordinary workmen.

relegated in a large business to salaried heads of departments, managers, foremen and others. And this thread will guide us to much that is useful for our present inquiry. The simplest case is that of the earnings of the ordinary foreman: and we may begin with that.

Let us suppose, for instance, that a railway contractor or a dockyard manager finds that it answers best to have one foreman to every twenty labourers, and to pay him twice the wages of one of them. This means that if he found himself with 500 labourers and 24 foremen he would expect to get just a little more work done at the same expense by adding one more foreman, than by adding two more ordinary labourers: while if he had had 490 labourers and 25 foremen, he would have found it better to add two more labourers. If he could have got his foreman for one and a half times the wages of a labourer, perhaps he would have employed one foreman to every fifteen labourers. But, as it is, the number of foremen employed, and their demand price, have their equilibrium values determined together by aid of the Law of Substitution:—the number at one twentieth of that of the labourers, the price at twice the labourers' wages[1].

In exceptional cases, as has just been remarked, the foremen may earn their wages, by over-driving those whose work they superintend. But we may now suppose them to contribute to the success of the undertaking in a legitimate way, by securing a better organization of its details; so that fewer things are done amiss and need to be undone; so that everyone finds the help that he wants in moving heavy weights &c., ready for him just when he wants it; so that all machinery and implements are kept in good working order, and no one has to waste his time and strength by working with inadequate appliances, and so on. And the wages of foremen who do work of this kind may be taken as typical of a great part of the Earnings of Management: society acting through the individual employer offers an effective demand for their services until that margin is reached at which the aggregate efficiency of industry would

[1] With this argument may be compared that of Book VII. Ch. I. § 5.

be increased by an addition to some other grade of workers more than by the foremen whose wages would add an equal amount to the expenses of production.

The action of the Law of Substitution in adjusting the relations between the Earnings of Management of the head of a business and those of foremen, managers, &c.

§ 3. Next let us look at the way in which the work of foremen and salaried managers is constantly being weighed against that of the heads of businesses. It will be interesting to watch the course of a small business as it gradually expands. A house carpenter, for instance, steadily increases his stock of tools, till he can hire a small workshop, and undertake odd jobs for private persons. They have to agree with him as to what is to be done: the work of management and the undertaking of what little risks there are, is shared between them and him. This gives them a great deal of trouble, and therefore they are not willing to pay him at a high rate for what work of management he does[1].

Illustration from the gradual rise of a working carpenter. His work as a small master builder.

So his next step is to undertake all the different sides of small repairs. He has now entered on the career of a master builder; and if his business grows he gradually withdraws himself from manual labour, and to some extent even from the superintendence of its details. Substituting for his own work that of hired men, he has now to deduct their wages from his receipts before he can begin to reckon his profits: and unless he proves himself to have a business ability up to the normal level of that grade of industry which he has now entered, he will probably soon lose all the little capital that he has gained, and after a short struggle return to that humbler rank of life in which he had prospered. Should his ability be just about that level, he will, with average good fortune, retain his position and perhaps gain a little ground: and the excess of his receipts over his outgoings will be representative of the normal Earnings of Management in his grade[2].

Changes in the character

If his ability be greater than that which is normal in his grade, he will be able with a given outlay for wages

[1] Comp. Book IV. Ch. XII. § 3.

[2] It should be noted that we assume him to be working chiefly with a good deal of borrowed capital; so that his Earnings of Management fall short of the profits of a man of normal ability in that grade working with his own capital, by that high rate of interest which the lenders have to charge in some form or other for loans in such cases as his, to compensate them for their risk and trouble (see Book VII. Ch. VII. § 6). We shall have to return to this point.

of his work as the scale of his business increases.

and other expenses to obtain as good a result as most of his rivals can with a larger outlay, he will have substituted his extra ability in organization for some of their outlay; and his Earnings of Management will include the value of that outlay with which he has dispensed. He thus increases his capital, and his credit: he is able to borrow more, and at a lower rate of interest. He obtains a wider business acquaintanceship and connection; he gets an increased knowledge of materials and processes, and opportunities for bold but wise and profitable adventure; until at last he has delegated to others nearly all those duties which occupied his whole time even after he had ceased to do manual work himself[1].

The adjustment between the earnings of undertakers on a large and on a small scale.

§ 4. We have now watched the Law of Substitution at work in adjusting the relations between the earnings of foremen and of ordinary workmen, and then again between those of employers and of foremen. We may now look a little at the adjustment between the earnings of employers on a small scale and those on a large scale.

Our carpenter having become a master builder on a very large scale, his undertakings are so many and so great as to have occupied the time and energies of some scores of employers who superintended all the details of their several businesses. And, in this struggle between large businesses and small, we see the Law of Substitution constantly in

[1] The employer of a large number of workmen has to economize his energies on the same plan that is followed by the leading officers of a modern army. For as Mr Wilkinson says (*The Brain of an Army*, pp. 42—6):—"Organization implies that every man's work is defined, that he knows exactly what he must answer for, and that his authority is coextensive with his responsibility.... [In the German army] every commander above the rank of a captain deals with a body composed of units, with the interior affairs of none of which he meddles, except in the case of failure on the part of the officer directly responsible....The general commanding an army corps has to deal directly with only a few subordinates.... He inspects and tests the condition of all the various units, but...he is as far as possible unhampered by the worry of detail. He can make up his mind coolly." Bagehot in characteristic fashion had remarked (*Lombard Street*, Ch. VIII.) that if the head of a large business "is very busy, it is a sign of something wrong;" and had compared (Essay on the *Transferability of Capital*) the primitive employer with a Hector or Achilles mingling in the fray, and the typical modern employer with "a man at the far end of a telegraph wire—a Count Moltke with his head over some papers—who sees that the proper persons are slain, and who secures the victory!"

operation; the large employer substituting a little of his own work and a good deal of that of salaried managers and foremen for that of a small employer. When, for instance, tenders for erecting a building are invited, a builder with a large capital often finds it worth his while to enter the lists, even though he lives at a distance. The local builders secure great economies in having workshops and men whom they can trust already near the spot; while he gains something through buying his materials on a large scale, through his command of machinery, especially for woodwork, and perhaps through being able to borrow what capital he wants on easier terms. These two sets of advantages frequently about balance one another; and the contest for the field of employment often turns on the relative efficiencies of the undivided energies of the small builder, and of that slight supervision which is all that the abler but busier large builder can afford to give, supplemented by the work of his local manager and of the clerks in his central office[1].

Distinction between the services of those undertakers who pioneer new methods of business, and those who follow the beaten track.

§ 5. Next we may observe that the services rendered to society by employers and other undertakers are of two classes, those who open out new and improved methods of business, and those who follow beaten tracks. The relation in which these two classes stand to one another may be best seen by an illustration.

It is well known that great economies have been introduced into many branches of iron manufacture by diminishing the number of times which the metal is heated in passing from pig iron to its final form. Suppose an iron manufacturer with a capital of £50,000 to be getting in normal times a net profit of £4,000 a year, £1,500 of which we may regard as his Earnings of Management, leaving £2,500 for the other two elements of profits. We assume that he has been working so far in the same way as his neighbours, and shewing an amount of ability which, though great, is no more than the normal or average ability of the people who fill such exceptionally difficult posts[2]. That is, we assume that £1,500 a year is the normal earnings for the kind of work he has

[1] Comp. Book IV. Ch. XI. § 4.

[2] See Book V. Ch. IV. § 5.

been doing. But as time goes on, he thinks out a way of dispensing with one of the heatings that have hitherto been customary; and in consequence, without increasing his expenses, he is able to increase his annual output by things which can be sold for £2,000 net. So long, therefore, as he can sell his wares at the old price, his Earnings of Management will be £2,000 a year above the average.

But as time goes on, his neighbours will copy his plan; and by so doing they may all of them make more than average profits for a time. This stage however will gradually come to an end: increased competition on the part of new men and of those already in the trade will increase the supply, and lower the price of their wares, unless indeed there is a combination in the trade to restrict production; and even that is not likely, as we shall see presently, to do more than somewhat delay the inevitable tendency. And ultimately these Earnings of Management will fall to about their old level; for no one could get extra high wages for making eggs stand on their ends after Columbus' plan had become public property.

The reward of the latter is seldom very high.

As soon then as any method of manufacturing is reduced to routine, and no longer requires exceptional ability, those who follow it will be unable to get the earnings of work that is really difficult. And so far competition tends to reward men in proportion to what they have done for society; for those who merely follow the beaten track do not render as important services as they would have done if they had had to think out the method for themselves. Society is indeed just as well off as it would have been if each of these people had found out the path for himself; but less of society's gains would then have had to be credited to knowledge which is the common property of the world, and more to these individual producers. Putting aside the gains of speculation, which requires to some extent a separate treatment, it so far seems true that competition tends to secure to each ordinary employer Earnings of Management equal to the direct additions which his work makes to the efficiency of production, and no more.

It must be admitted that occasionally a man will com-

plete improvements which others have nearly worked out, and by patenting the last little link which he has added, get more than his deserts. But if he patents it, and allows others to use it at a moderate premium, he will probably confer on society a total benefit the money equivalent of which, even while his patent lasts, is much greater than the profits which he himself obtains. And if the invention is one that can be easily copied, so that his rivals, making use of it, can compete against him and bring down the price of what he sells, his own profits are likely to be very small, perhaps altogether insignificant, in comparison with the total benefit which he confers. It is, in fact, probable that those business men who have earned large fortunes by striking out new paths for themselves have not, taken all together, reaped a hundredth part of the total benefit that the world has gained from their work: perhaps not a thousandth part.

That of the former sometimes is very high; but is scarcely ever commensurate with their real value to society.

§ 6. We may next watch the action of the Law of Substitution in pushing forward undertakers working chiefly with their own capital in some trades, and in others those working chiefly with borrowed capital. The Personal Risks[1] against which the lender of capital to be used in business requires to be indemnified vary to some extent with the nature of that business as well as with the circumstances of the individual borrower. They are very high in some cases, as for instance when a man is starting in a new branch of the electrical trades, in which there is very little past experience to go by, and the lender cannot easily form any independent judgment as to the progress which is being made by the borrower; and in all such cases the man working with borrowed capital is at a great disadvantage; the rate of profit is determined chiefly by the competition of those who apply their own capital. It may happen that not many such men have access to the trade; and in that case the competition may not be keen, and the rate of profit may be high; that is it may exceed considerably net interest on the capital together with Earnings of Management on a scale commensurate with the difficulty of the business done, though that difficulty will probably be above the average.

An undertaker working with borrowed capital is at a disadvantage in some trades.

[1] Ch. VII. § 7.

And again the new man with but little capital of his own is at a disadvantage in trades which move slowly and in which it is necessary to sow a long time before one reaps.

But in others he plays a leading part;

But in all those industries in which bold and restless enterprise can reap a quick harvest; and in particular wherever high profits are to be made for a time by cheaper reproductions of costly wares, there the new man is in his element: it is he who by his quick resolutions and dexterous contrivances, and perhaps also a little by his natural recklessness "forces the pace."

for he will work hard for a small reward.

And he often holds his own with great tenacity even under considerable disadvantages; for the freedom and dignity of his position is very attractive to him. Thus the peasant proprietor whose little plot is heavily mortgaged, the small so-called "sweater" or "garret master" who takes out a sub-contract at a low price, will often work harder than the ordinary workman, and for a lower net income. And the manufacturer who is doing a large business with comparatively little capital of his own, knowing that he must anyhow work for his living, and unwilling to go into service to another, will reckon his labour and anxiety almost as nothing: he will work feverishly for a gain that would not count much in the balance with another, who being able to retire and live in comfort on the interest of his capital, is doubting whether it is worth while to endure any longer the wear and tear of business life[1].

[1] In 1873 twenty years of almost unbroken rise of prices had enriched debtors at the expense of creditors, and had, in ways which we shall have to study in the second volume of this treatise, enriched undertakers of business of all kinds partly at the expense of other members of society. New men found their way into business made very smooth; and those who had already made or inherited business fortunes, found their way made smooth for retiring from active work. And Bagehot writing about that time (*Lombard Street*, Introductory chapter), argued that the growth of new men was making English business increasingly democratic: and, though admitting that "the propensity to variation in the social as in the animal kingdom is the principle of progress," he pointed out regretfully how much the country might have gained by the long duration of families of merchant princes. But in recent years there has been some reaction, due partly to social causes, and partly to the influence of a continued fall in prices. The sons of business men are rather more inclined than they were a generation ago to take pride in their fathers' callings; and they find it harder to satisfy the demands of an ever increasing luxury on the income which would be theirs if they withdrew from business.

§ 7. In marked contrast with the energy and versatility of the new man are the great Joint Stock companies; though they also go beyond the older forms of business association in the facilities which they offer for men without capital to rise to high posts of business management[1]. In such companies it is the shareholders only that are the ultimate undertakers of business risks; and they as a rule know but little of what is being done and what ought to be done. The real work of management is divided between salaried directors (who indeed hold a few shares themselves) and salaried managers and other subordinate officials, most of whom have little or no capital of any kind. Their earnings are almost the pure earnings of labour and are governed in the long run by those general causes which rule the earnings of labour of equal difficulty and disagreeableness in ordinary occupations.

The officials of joint-stock companies do the work of business management, and their income is almost mere earnings of labour.

Joint Stock companies are hampered by internal frictions, and conflicts of interest between shareholders and debenture holders, between ordinary and preferred shareholders, and between all these and the directors; and by the need for an elaborate system of checks and counterchecks. They seldom have the enterprise, the energy, the unity of purpose and the quickness of action of a private business.

Disadvantages of public companies,

But these disadvantages are of relatively small importance in some trades. That publicity, which is one of the chief drawbacks of public companies in many branches of manufacture and of speculative commerce, is a positive advantage in ordinary Banking and Insurance and kindred businesses; while in these as well as in most of the transport industries (railways, tramways, canals, and the supply of gas, water, and electricity) their unbounded command over capital gives them almost undisputed sway.

and their advantages.

A peculiar feature of this latter class of industries is that their Fixed capital is large relatively to their Circulating. And we have already seen[2] that, when this is the case, the Prime cost of the goods produced or the services rendered is small relatively to the Total or true normal cost which must be defrayed in the long run in order to make the busi-

The largest public companies are often found in trades in which prices are naturally unstable.

[1] Comp. Book IV. Ch. XII. § 8.

[2] Book VI. Ch. VI. § 1.

ness remunerative. When several companies whose business is of this kind are in keen competition, they are under a great temptation to attract custom by selling at much less than normal cost; but probably they do not yield to this temptation more than, or even as much as, private capitalists would under similar circumstances. And on the whole those powerful joint stock companies which have great traditions and look forward to a distant future pursue a far-seeing if a sluggish policy; they are seldom willing to sacrifice their reputation for the sake of a temporary gain; they are not inclined to drive such hard bargains with their employés as will make their service unpopular; and they exercise generally a steadying influence on the demand for capital, and on the demand for labour of all kinds, and especially for the services of those who, having business ability but no capital of their own, desire to reap some Earnings of Management as salaried officials of a great undertaking.

But on the whole they exert a steadying influence on employment.

A somewhat different influence is exercised by those companies which are growing up even in trades for which the joint stock system has no special fitness; this growth being a result of the constant increase on the one hand of people who have business ability but no capital, and on the other of people who have capital but no facilities for employing it themselves or for lending it out safely to be used in private businesses. For the shares in many of these companies are owned by persons who are impatient of delay, and require their directors and managers to pursue an aggressive, pushing policy. A very large proportion of such companies fail; having enriched none but the promoters. But though they lead to much destruction of capital, the opportunities which they offer for the investment of small sums with a promise of a high profit, lead many to save who otherwise would not. Their influence in breaking down partial monopolies and trade combinations, is one of several causes which render them unpopular with some business men; but they probably tend in the long run to increase the wealth of the working and lower middle classes, as well as to develop any business abilities they may have[1].

Special features of some classes of public companies.

[1] The Limited Liability Act has to bear the blame of evils that should not pro-

Co-operation promises more than any other form of business association to turn to good account the capabilities of the working man for the higher posts of business management. Those working men indeed whose tempers are strongly individualistic, and whose minds are concentrated almost wholly on their own affairs, will perhaps always find their quickest and most congenial path to material success by commencing business as small independent employers or by working their way upwards in a private firm or a public company. But co-operation has a special charm for those in whose tempers the social element is stronger, and who desire not to separate themselves from their old comrades, but to work among them as their leaders. Its aspirations may in some respects be higher than its practice; but it undoubtedly does rest in a great measure on ethical motives: the true co-operator combines a keen business intellect, with a spirit full of an earnest Faith. The lessons, both economic and ethical, which the history of co-operation has to teach are very important, but we must postpone the study of them[1].

Co-operation offers a splendid opening for the business abilities of the working classes; but the problems raised by it must be deferred.

perly be charged to it; and the harm really done by it is probably small in comparison with the good; but undoubtedly it does work mischief in several ways, two of which may be mentioned here. Firstly, the news of the exceptional profitableness of any business generally takes some time in reaching small investors; and therefore a rush of new companies supported by their capital is likely to continue after the trade is already overstocked, and thus to cause in the long run a great and disastrous reaction. Secondly, when the shareholders borrow, as they frequently do, a great deal of additional capital on debentures, they are apt to divide out nearly the whole surplus of receipts over outgoings, including the interest on that capital. That surplus is in prosperous times large in proportion to their own capital and affords very high dividends: but the company is left without any adequate reserve fund to meet an adverse turn of fortune. Much information on this and similar subjects was collected by the recent Royal Commission on the Depression of Trade.

[1] One cause that makes the lessons of co-operation difficult to be read may be noticed in passing. It is that the successes of the co-operative movement in retail dealing are in a great measure due to the exceptional advantages which it has there in the matters of marketing; and on the other hand many of the failures which it has suffered in manufacture are due to the exceptional difficulties which independent co-operative societies have met in their attempts to market their goods. Reference may be made to an Address given by the present writer to the Co-operative Congress at Ipswich in 1889 for some further explanation of the remarks in the text, and for an argument that true co-operation cannot have a fair trial unless the Productive societies federate themselves, at all events for the limited purpose of marketing their goods. See also above Book IV.

Modern methods of business exercise in the aggregate a powerful tendency to adjust Earnings of Management to the difficulty of the work done.

§ 8. Thus then each of the many modern methods of business has its own advantages and disadvantages: and its application is extended under the action of the Law of Substitution in every direction until that limit or margin is reached at which its special advantages for that use no longer exceed its disadvantages. Or, to put the same thing in another way, the margin of profitableness of different methods of business organization for any particular purpose, is to be regarded not as a point on any one line, but a boundary line of irregular shape cutting one after another every possible line of business organization; and these modern methods, partly on account of their great variety, but partly also on account of the scope which many of them offer to men of business ability who have no capital, render possible a much closer correspondence between the Earnings of Undertaking and Management and the services by which those earnings are got than could be generally attained under the primitive system in which capital was scarcely ever applied to production by any save its owners. For then it could only be by a fortunate accident that those who had the capital and the opportunity for carrying on any trade or performing any service, of which the public was in need, had the aptitudes and the abilities required for the task. But now that share of the expenses of production of any commodity which is commonly classed as profits, is so rigorously controlled on every side by the action of the Law of Substitution, that it cannot long diverge from the normal supply price of the capital needed, added to the normal supply price of the ability and energy required for managing the business, and lastly the normal supply price of that organization by which the appropriate business ability and the requisite capital are brought together.

Net and *Gross* Earnings of Management.

We have called the price of the first of these three elements "Net Interest;" we may call the price of the second taken by itself "NET Earnings of Management," and that of the second and third taken together "GROSS Earnings of Management."

Ch. XII. § 10. An excellent account of the movement is contained in *Working Men Co-operators*, by Mr A. H. D. Acland, and Mr B. Jones.

§ 9. The supply of business power is large and elastic, because the area from which it is drawn is large, and its highest qualities are non-specialized and capable of being transferred from one occupation to another. Firstly, it is drawn from a wide area because every one has the business of his own life to conduct; and this, if done well, affords to some extent training for business management. There is therefore no other kind of highly paid ability which depends so little on labour and expense applied specially to obtaining it, and which depends so much on so-called "natural qualities." And, secondly, business power is highly non-specialized; because in the large majority of trades, technical knowledge and skill become every day less important relatively to the broad and non-specialized faculties of "judgment, promptness, resource, carefulness and steadfastness of purpose[1]."

The supply of business ability is drawn from a wide area,

and is non-specialized.

It is true that in small businesses in which the master is little more than the head workman, specialized skill is very important. And it is true that "each sort of trade has a tradition of its own, which is never written, probably could not be written, which can only be learnt in fragments, and which is best taken in early life, before the mind is shaped and the ideas fixed. But each trade in modern commerce is surrounded by subsidiary and kindred trades, which familiarize the imagination with it, and make its state known[2]." Moreover those general faculties which are characteristic of the modern business man increase in importance as the scale of business increases. It is they which mark him out as a leader of men; and which enable him to go straight to the kernel of the practical problems with which he has to deal, to see almost instinctively the relative proportions of things, to conceive wise and far-reaching policies, and to carry them out calmly and resolutely[3].

[1] Book IV. Ch. XII. § 12. As General Walker has well said (*Wages Question*, Ch. XIV.). When the forms of production cease to be few and simple, it becomes "no longer true that a man becomes an employer because he is a capitalist. Men command capital because they have the qualifications to profitably employ labour. To these captains of industry...capital and labour resort for opportunity to perform their several functions."

[2] Bagehot, *Postulates*, p. 75.

[3] Bagehot (l. c. pp. 94—5) says that the great modern commerce has "certain

First steps towards a comparison of the action of demand and supply in the cases of skilled labour and business power.

It must be admitted indeed that the adjustment of supply to demand in the case of business ability is somewhat hindered by the difficulty of ascertaining exactly what is the price that is being paid for it in any trade. It is comparatively easy to find out the wages of bricklayers or puddlers by striking an average between the wages that are earned by men of various degrees of efficiency, and allowing for the inconstancy of their employment. But the gross Earnings of Management which a man is getting, can only be found after making up a careful account of the true profits of his business, and deducting interest on his capital. The exact state of his affairs is often not known by himself; and it can seldom be guessed at all accurately even by those who are in the same trade with himself. It is not true even in a little village at the present day that every one knows all his neighbour's affairs. As Cliffe Leslie said, "The village innkeeper, publican or shopkeeper, who is making a small fortune does not invite competition by telling his neighbours of his profits, and the man who is not doing well does not alarm his creditors by exposing the state of his affairs[1]."

But though it may be difficult to read the lessons of an individual trader's experience, those of a whole trade can never be completely hidden, and can not be hidden at all for long. Although one cannot tell whether the tide is rising or falling by merely watching half-a-dozen waves breaking on the seashore, yet a very little patience settles the question.

general principles which are common to all kinds of it, and a person can be of considerable use in more than one kind if he understands these principles and has the proper sort of mind. But the appearance of this common element is in commerce, as in politics, a sign of magnitude, and primitive commerce is all petty. In early tribes there is nothing but the special man—the clothier, the mason, the weapon-maker. Each craft tried to be, and very much was, a mystery except to those who carried it on. The knowledge required for each was possessed by few, kept secret by these few, and nothing else was of use but this monopolised and often inherited acquirement; there was no 'general' business knowledge. The idea of a general art of money making is very modern; almost every thing ancient about it is individual and particular." It is a remarkable instance of the parallelism of the work done by economists in different nations that Bagehot's *Postulates* was first published in the *Fortnightly Review* early in 1876, the very year in which General Walker's *Wages Question* appeared. These two writers have done more than any others to make clear the true characteristics of modern business and modern business men.

[1] *Fortnightly Review*, Vol. xxv.

And there is a general agreement among business men that the average rate of profits in a trade cannot rise or fall much without general attention being attracted to the change before long. And though it is a more difficult task for a business man than for a skilled labourer to find out whether he could improve his prospects by changing his trade, yet the business man has great opportunities for discovering whatever can be found out about the present and future of other trades; and if he wishes to change his trade, he can generally do so more easily than the skilled workman can.

On the whole then we may conclude that the rarity of the natural abilities and the expensiveness of the special training required for the work affect normal Earnings of Management in much the same way as they do the normal wages of skilled labour. In either case a rise in the income to be earned sets in operation forces tending to increase the supply of those capable of earning it; and in either case the extent to which the supply will be increased by a given rise of income, depends upon the social and economic condition of those from whom the supply is drawn. For though it is true that an able business man who starts in life with a great deal of capital and a good business connection is likely to obtain higher Earnings of Management than an equally able man who starts without these advantages; yet there are similar, though smaller, inequalities between the earnings of professional men of equal abilities who start with unequal social advantages; and the wages even of a working man depend on the start he has had in life almost as much as on the expense which his father has been able to afford for his education[1]. We shall soon have to return to this subject, and discuss it from a slightly different point of view.

[1] See Book VII. Ch. v. § 3.

CHAPTER IX.

DEMAND AND SUPPLY IN RELATION TO CAPITAL AND BUSINESS POWER, CONTINUED.

We have next to inquire whether there is any general tendency of the rate of profits to equality.

§ 1. IN the last chapter we were chiefly occupied with the modern economic tendencies to adjust to one another capital and the ability required to use it well; and we inquired, more fully than we had done in the Fourth Book, how two sets of forces, the one increasing the capital at the command of able men and the other destroying the capital that is in the hands of weaker men, bring about a close correspondence between the ability of business men and the size of the businesses which they own. Bearing this result with us, we have next to discuss the question whether there is any normal relation between the Earnings of Management in different businesses and the capital required to carry them on: or, what is nearly the same thing, whether the rate of profits *per annum* on capital invested in business has any general tendency to equality.

In a large business some Earnings of Management are classed as salaries; and in a small business much wages of labour is classed as profits.

Our first difficulty is in some measure verbal. It arises from the fact that the head of a small business does himself much of the work which in a large business is done by salaried managers and foremen; and that while their earnings are deducted from the net receipts of the large business before its profits are reckoned, the earnings of the whole of his labour are reckoned among his profits. As Adam Smith pointed out[1]:—"The whole drugs which the best employed apothecary in a large market town will sell in a year may

[1] *Wealth of Nations*, Book I. Ch. X.

not perhaps cost him above thirty or forty pounds. Though he should sell them, therefore, for three or four hundred or a thousand per cent. profit [on the turnover] this may frequently be no more than the reasonable wages of his labour in the only way in which he can charge them, upon the price of the drugs. The greater part of the apparent profit is real wages disguised in the garb of profit. In a small sea-port town a little grocer will make forty or fifty per cent. upon a stock of a single hundred pounds, while a considerable wholesale merchant in the same place will scarce make eight or ten per cent. upon a stock of ten thousand[1]."

A correction of this anomaly of language removes the chief source of the opinion that profits are high in a small business.

The greater part of the nominal inequality between the normal rates of profit in small businesses and in large would disappear if the scope of the term profits were narrowed in the former case or widened in the latter, so that it included in both cases the remuneration of the same classes of services. It might even appear probable that, were this done, the rate of profit on large capitals would be higher than on small. For of two businesses competing in the same trade that with the larger capital can nearly always buy at the cheaper rate, and can avail itself of many economies in the specialization of skill and machinery and in other ways which are out of the reach of the smaller business: while at most the only important advantage which the latter is likely to have consists of its greater facilities for getting near its customers and consulting their individual wants. In trades in which this last advantage is not important, and especially in some manufacturing trades in which the large firm can sell at a better price than the small one, the outgoings of the former are proportionately less and the incomings larger; and therefore, if the scope of the term "profits" be the same in both cases, the rate of profits in the former case must be higher than in the latter.

In some trades they are really lower in small businesses than in large;

[1] Senior, *Outlines*, p. 203, puts the normal rate of profits on a capital of £100,000 at less than 10 per cent., on one of £10,000 or £20,000 at about 15 per cent., on one of £5,000 or £6,000 at 20 per cent., and "a much larger per centage" on smaller capitals. Compare also § 4 of the preceding chapter. It should be noted that the nominal rate of profits of a private firm is increased when a manager, who brings no capital with him, is taken into partnership and rewarded by a share of the profits instead of a salary.

but in these trades there are few small businesses left;

But these are the very businesses in which it most frequently happens that large firms after first crushing out small ones, either combine with one another and thus secure for themselves the gains of a limited monopoly, or by keen competition among themselves reduce the rate of profit very low. There are many branches of the textile, the metal, and the transport trades in which no business can be started at all except with a large capital; while those that are begun on a moderate scale struggle through great difficulties in the hope that after a time it may be possible to find employment for a large capital which will yield Earnings of Management high in the aggregate though low in proportion to the capital.

and in some of these trades the normal rate of profits is very low.

There are some trades which require a very high order of ability, but in which it is nearly as easy to manage a very large business as one of moderate size. In rolling mills for instance there is little detail which cannot be reduced to routine, and a capital of £1,000,000 invested in them can be controlled by one able man. A rate of profits of 20 per cent., which is not a very high average rate for some parts of the iron trade, would give the owner of such works Earnings of Management amounting to more than £150,000 a year. And since iron-masters can with so little additional effort get the Earnings of Management on an increased capital, wealthy men remain in the trade longer than in most others; and the competition of the great iron-masters with one another is said to have reduced the average rate of profits in their trade below the ordinary level.

The rate of profits is low in nearly all those trades which require very little ability of the highest order, and in which a public or private firm with a good connection and a large capital can hold its own against new comers, so long as it is managed by men of industrious habits with sound common sense and a moderate share of enterprize. And men of this kind are seldom wanting either to a well-established public company or to a private firm which is ready to take the ablest of its servants into partnership.

General result of the com-

On the whole then we may conclude that the true rate of profits in large businesses is higher than at first sight

appears, because much that is commonly counted as profits in the small business ought to be classed under another head before the rate of profits in it is compared with that in a large business: and that, even when this correction has been made, the rate of profits declines generally as the size of the business increases; because in fact there seldom are many small businesses in a trade which does not offer them some special advantages in marketing &c. to countervail the economies in production that are available only by large businesses. And these economies are generally turned to account by the large firms not in keeping up their own rate of profits, but in competing with one another by lowered prices for an increased share of custom.

Comparison between large businesses and small.

§ 2. The normal Earnings of Management are of course high in proportion to the capital (and therefore the rate of profits per annum on the capital is high) when the work of management is heavy in proportion to the capital. Individual trades have indeed peculiarities of their own, and all rules on the subject are liable to great exceptions. But other things being equal, the following general propositions will be found to be valid, and to explain many inequalities in the normal rates of profit in different trades.

Many differences in the normal rate of profits per annum in different trades may be explained by the following principles:—

Firstly, the work of management in a business depends more on the Circulating capital used than on the Fixed. The rate of profit tends therefore to be low in trades in which there is a disproportionately large amount of durable plant that requires but little trouble and attention when once it has been laid down. As we have seen these trades are likely to get into the hands of joint stock companies: and the aggregate salaries of the directors and higher officials bear a very small proportion to the capital employed in the case of railway and water companies, and, even in a more marked degree, of companies that own canals and docks and bridges[1].

Profits are high where the Circulating capital is large relatively to the Fixed;

[1] An interesting application of this principle is found in the fact that a manufacturer, who owns the factory he uses, has generally to be contented with a lower rate of profit per annum on his capital, than another who works in a hired factory, and therefore does not count the value of his factory as part of his capital; for the profits on capital invested in buildings are low, because no great trouble is involved by owning them and letting them out. This fact may, however, be regarded from another point of view as an instance of the rule that if a man

and they are especially high when the wages-bill is very large relatively to the capital.

Next, given the proportion between the fixed and circulating capital of a business; the work of management will generally be the heavier, and the rate of profits the higher, the more important the wages-bill is relatively to the cost of material and the value of the stock in trade. It is true that in trades that handle costly materials, success depends very much upon good fortune and ability in buying and selling; and that the order of mind required for interpreting rightly and reducing to their proper proportions the causes that are likely to affect price is rare, and can command high earnings. Allowance must be made for this. But in trades in which the speculative element is not very important, so that the work of management consists chiefly of superintendence, the Earnings of Management will follow pretty closely on the amount of work done in the business; and a very rough but convenient measure of this is found in the wages-bill. And perhaps the least inaccurate of all the broad statements that can be made with regard to a general tendency of profits to equality, in different trades, is that where equal capitals are employed, profits tend to be a certain percentage per annum on the total capital, together with a certain percentage on the wages-bill[1].

has borrowed much of the capital he uses in business, his profits even after he has paid a rather high interest on his borrowings, will generally be large in proportion to his own capital.

[1] There is great difficulty in ascertaining even approximately the amounts of capital of different kinds invested in different classes of business; for much of it is always shifting from one use to another; much of it is constantly changing in value as the result of new improvements and many other causes; a good deal of it is apt to be overlooked, and a good deal more to be counted twice over (this applies especially to buildings and other capital that is owned by one person and used by another); and finally business men are seldom willing to publish the best guess they can make as to the amount of their capital. In consequence the returns of the American Census are less trustworthy on this subject than on almost any other (see General Walker's remarks in the *Census Report* of 1880, Vol. II. p. xxxix). Nevertheless they are the most instructive for our present purpose that we have: they show that the conclusion arrived at in the text gives widely different results from the proposition that profits in different trades tend to be proportionate to the total capital employed. The list includes not only manufactures proper, but all industries such as baking, sugar refining, &c. which make a *slight change* in the form of any material; and in consequence many things are reckoned twice over: for instance, the products of flour mills and bakeries are counted in full, and so are those of tanneries and of boot factories. Comparing firstly Total Product with capital we find that they vary from less

§ 3. In trades in which the wages-bill and the value of the material consumed are large in proportion to the capital, the aggregate turnover of capital will also be large in proportion. And we are thus brought to consider the causes which determine the rate of profits on the "turnover"; or, which comes to the same thing, the percentage of the supply price of a commodity which has to be classed as profits.

The rate of profits on the turnover varies much more widely than the annual rate of profits on capital.

It is obvious that while the normal rate of profits per annum varies within narrow limits, the profits on the turnover depend on the length of time and the amount of work required for the turnover; and therefore vary very widely from one branch of trade to another. Thus wholesale dealers who buy and sell large quantities of produce in single transactions, and who are able to turn over their capital very rapidly, may make large fortunes though their average profits on the turnover are less than one per cent.; and, in the extreme case of large stock exchange dealings, even when they are only a small fraction of one per cent. But a shipbuilder who has to put labour and material into the ship, and to provide a berth for it, a long while before it is ready for sale; and who must take care for every detail connected with it, must add a very high percentage to his direct and indirect outlay in order to remunerate him for his labour, and the locking up of his capital[1].

Illustrative instances.

than the capital in watch and cotton factories &c. to four, five, or six times the capital in carpentering and boot factories, as well as in some of the "Slight-change" industries such as sugar refining, and slaughtering and meat packing.

Next, analysing the turnover of Circulating capital and comparing the cost of raw material to the wages-bill, we find that the former is much less than the latter in watch factories, where the bulk of the material is small, and in stone, brick and tile works, where it is of a common sort: but in the large majority of industries the cost of material is much greater than the wages-bill; on the average of all the industries it is three and a half times as great. And in the Slight-change industries it is generally from twenty-five to fifty times as great.

[1] He would however not need to charge a high rate of profits per annum on that part of his capital which he had sunk in the earlier stages of building the ship; for that capital, when once invested, would no longer require any special exercise of his ability and industry; and it would be sufficient for him to reckon his outlay "accumulated" at a high rate of compound interest; but in that case he must count the value of his own labour as part of his early outlay. On the other hand, if there be any trade in which a continuous and nearly uniform expenditure of trouble is called for on all the capital invested, then it would be reasonable in that trade to find the "accumulated" value of the earlier investments by the addition of a "compound" rate of profit (i.e. a rate

Again, in the textile industries some firms buy raw material and turn out finished goods, while others confine themselves to spinning, to weaving, or to finishing: and it is obvious that the rate of profit on the turnover of one of the first class must be equal to the sum of the rates of profit of one of each of the three other classes[1]. Again, the retail dealers' profit on the turnover is often only five or ten per cent. for commodities which are in general demand, and which are not subject to changes of fashion; so that while the sales are large, the necessary stocks are small, and the capital invested in them can be turned over very rapidly, with but little trouble and no risk. But a profit on the turnover of nearly a hundred per cent. is required to remunerate the retailer of some kinds of fancy goods which can be sold but slowly, of which varied stocks must be kept, which require a large space for their display, and which a change of fashion may render unsaleable except at a loss, and even this high rate is often exceeded in the case of fish, fruit, flowers and vegetables[2].

But each branch of trade has its customary or fair rate of profit on the turnover.

§ 4. We see then that there is no general tendency of profits on the turnover to equality; but there may be, and as matter of fact there is, in each trade and in every branch of each trade, a more or less definite rate of profits on the turnover which is regarded as a "fair" or normal rate. Of course these rates are always changing in consequence of changes in the methods of trade; which are generally begun

of profit increasing geometrically as compound interest does). And this plan is frequently adopted in practice for the sake of simplicity even where it is not theoretically quite correct. (Compare footnote on p. 515.)

[1] Strictly speaking it will be a little greater than the sum of these three, because it will include compound interest over a longer period.

[2] The fishmongers and greengrocers in working-class quarters especially lay themselves out to do a small business at a high rate of profits; because each individual purchase is so small that the customer would rather buy from a dear shop near at hand than go some way to a cheaper one. The retailer therefore may not be getting a very good living though he charges a penny for what he bought for less than a halfpenny. That very thing was however perhaps sold by the fisherman or the farmer for a farthing or even less; and the direct cost of carriage and insurance against loss will not account for any great part of this last difference. Thus there seems to be some justification for the popular opinion that the middlemen in these trades have special facilities for obtaining abnormally high profits by combination among themselves.

The practical advantages of this customary rate, and how it is ultimately determined.

by individuals who desire to do a larger trade at a lower rate of profit on the turnover than has been customary, but at a larger rate of profit per annum on their capital. If however there happens to be no great change of this kind going on, the traditions of the trade that a certain rate of profit on the turnover should be charged for a particular class of work are of great practical service to those in the trade. Such traditions are the outcome of much experience tending to show that, if that rate is charged, a proper allowance will be made for all the costs[1] incurred for that particular purpose, and in addition the normal rate of profits per annum in that class of business will be afforded. If they charge a price which gives much less than this rate of profit on the turnover they can hardly prosper; and if they charge much more they are in danger of losing their custom, since others can afford to undersell them. This is the "fair" rate of profit on the turnover which an honest man is expected to charge for making goods to order, when no price has been agreed on beforehand; and it is the rate which a Court of Law will allow, in case a dispute should arise between buyer and seller[2].

[1] That is for the Total cost, Supplementary as well as Prime. See Book VI. Ch. VI.

[2] The "expert" evidence that is given in such cases is full of instruction to the economist in many ways, and in particular because of the use of mediæval phrases as to the customs of the trade, with a more or less conscious recognition of the causes which have produced those customs, and to which appeal must be made in support of their continued maintenance. And it almost always comes out finally that if the "customary" rate of profit on the turnover is higher for one class of job than another, the reason is that the former does (or did a little while ago) require a longer locking up of capital; or a greater use of expensive appliances (especially such as are liable to rapid depreciation, or cannot be kept always employed, and therefore must pay their way on a comparatively small number of jobs); or that it requires more difficult or disagreeable work, or a greater amount of attention on the part of the undertaker; or that it has some special element of risk for which insurance has to be made. And the unreadiness of experts to bring to light these justifications of custom, which are lying almost hidden from themselves in the recesses of their own minds, gives ground for the belief that if we could call to life and cross-examine mediæval business men, we should find much more half-conscious adjustment of the rate of profit to the exigencies of particular cases than has been suggested by historians. Many of them fail sometimes to make it clear whether the customary rate of profits of which they are speaking is a certain rate on the turnover, or such a rate on the turnover as will afford in the long run a certain rate of profits

BOOK VII. CH. IX.

Profits are a constituent element of normal supply-price.

§ 5. During all this inquiry we have had in view chiefly the long-period or true normal results of economic forces; we have considered the way in which the supply of business ability in command of capital tends in the long run to adjust itself to the demand; we have seen how under the action of the Law of Substitution it seeks constantly every business and every method of conducting every business in which it can render services that are so highly valued by persons who are able to pay good prices for the satisfaction of their wants, that those services will in the long run earn a high reward. The motive force is the undertaker himself; he is always trying every opening, always forecasting probable future events, reducing them to their true relative proportions, and considering what surplus is likely to be afforded by the receipts of any undertaking over the outlay required for it. All his prospective gains enter into the profits which draw him towards the undertaking; all the investments of his capital and energies in making the appliances for future production, and in building up the "Immaterial" capital of a business connection have to show themselves to him as likely to be profitable, before he will enter on them: the whole of the profits which he expects from them enter into the reward which he expects in the long run for his venture. And if he is a man of normal ability (normal that is for that class of work)[1], and is on the margin of doubt whether to make the venture or not, they may be taken as true representatives of the (marginal) normal expenses of production of the services in question. Thus the whole of the normal profits enter into true or long-period supply price.

But the income derived

But so soon as his skill, his material capital, and his business connection are to any extent specialized to any one

per annum on the capital. Of course the greater uniformity of the methods of business in mediæval times, would enable a tolerably uniform rate of profits on the capital per annum to exist without causing so great variations in the rate on the turnover as are inevitable in modern business. But still it is clear that if one kind of rate of profits were nearly uniform, the other would not be; and the value of much that has been written on mediæval economic history seems to be somewhat impaired by the absence of a distinct recognition of the differences between the two kinds and between the ultimate sanctions on which customs relating severally to them must depend.

[1] Compare Book v. Ch. iv. § 5.

branch of business; then to that extent these factors of production cease to exert a direct influence on the value of the products due to them: and on the other hand the value of those products (in conjunction with the other circumstances of the case) determines the income which can be derived from these factors; i.e. it determines what we have called their Quasi-rent.

Income from capital already invested is generally a Quasi-rent determined by price.

This argument was worked out in detail in Book VI. and in the last chapter but one of Book VII. with regard to material capital; and it was applied to Personal or Immaterial capital in the sixth chapter of Book VII. We there saw how the earnings which a man expects to obtain from the possession of any kind of industrial skill, supply motives which induce him to acquire that skill; and that therefore in the long run such earnings enter into the supply price of the things in making which that skill is needed. But when once he has acquired that skill, the extra earnings which he gets by it are determined by the relations in which the supply of that skill stands to the demand for it; this being in general an indirect demand derived from the direct demand for those classes of things to the making of which his skill contributes. We saw moreover that industrial skill, being but slowly acquired, is to be compared to those kinds of Fixed capital which take a long time in the making: and that when we are contrasting the action of economic forces in long periods and short, we must take the term "long" to indicate a greater duration with regard to labour and slowly produced forms of Fixed capital than with regard to ordinary commodities. The whole of that argument, to which the reader is referred, applies generally to the earnings of business power in the same way as to the earnings of industrial skill: though now, continuing from a slightly different point of view the discussion begun at the end of last chapter, we shall find that there are some noteworthy differences between the two cases.

Recapitulation of this argument with reference to the investments of capital in acquiring trade skill.

§ 6. We have seen that the motives which induce a man and his father to invest capital and labour in preparing him for his work as an artisan or as a professional man, are similar to those which induce an employer or his

Substantially the same argument applies to the Imma-

terial as well as to the Material capital from which the Undertaker derives his income; so long as we consider only normal results.

father to invest capital and labour not only in preparing him for his work, but also in getting together the material plant and the business organization that he will require. In either case the investment is made as a deliberate sacrifice of present ease and present gratifications for the sake of future pleasures and gains: and in either case the investment of sacrifice is (so far as man's action is governed by deliberate motive at all) carried up to that margin at which any further investment appears to offer no balance of gain, no excess or surplus of utility over "dis-utility." The price that is expected as a reward for all this investment is therefore a part of the normal expenses of production of the services rendered by it. We have to take a long period of time in order to get the full operation of all these causes; so that exceptional success may be balanced against exceptional failure. On the one hand are those who succeed abundantly because they turn out to have rare ability or rare good fortune either in the particular incidents of their speculative enterprises, or in meeting with a favourable opportunity for the general development of their business[1]. And on the other are those who are mentally or morally incapable of making good use of their training and their favourable start in life, who have no special aptitude for their calling, whose speculations are unfortunate, or whose businesses are cramped by the encroachment of rivals, or left stranded by the tide of demand receding from them and flowing in some other direction.

But these disturbing causes give rise to great differences with refer-

But though these disturbing causes may thus be neglected in problems relating to normal earnings and normal value, they assume the first rank, and exert a predominating influence with regard to the incomes earned by particular

[1] "Opportunity" is the best translation for some purposes, as "Industrial Environment" (see Book VI. Ch. IV.) is for others, of the German word *Conjunctur*. That term is thus explained by Prof. Wagner (*Volkswirthschaftslehre* I. § 76). "By Conjunctur we understand the sum total of the technical, economic, social and legal conditions; which, in a mode of national life (*Volkswirthschaft*) resting upon Division of Labour and Private Property—especially private property in land and other material means of production—determine the demand for and supply of goods, and therefore their exchange value: this determination being as a rule, or at least in the main, *independent* of the will of the owner, of his activity and his remissness."

individuals at particular times. And, since these disturbing causes affect profits and the Earnings of Management in very different ways from those in which they affect ordinary earnings, there is a scientific necessity for treating differently profits and ordinary earnings when we are discussing temporary fluctuations and individual incidents. Questions relating to market fluctuations cannot indeed be properly handled till the theories of Money, Credit and Foreign Trade have been discussed: but even at this stage we may note the following contrasts between the ways in which disturbing causes such as we have just described affect profits and ordinary earnings.

Reference to market fluctuations and individual cases.

§ 7. In the first place the undertaker's profits bear the first brunt of any change in the price of those things which are the joint product of his capital (including his business organization), his labour and the labour of his employés, and as a result fluctuations of his profits generally precede fluctuations of their wages, and are much more extensive. For, other things being equal, a comparatively small rise in the price for which he can sell his product is not unlikely to increase his profit manyfold, or perhaps to substitute a profit for a loss. That rise will make him more able and more willing to pay high wages to his employés; he will be eager to reap the harvest of good prices while he can; and he will be in fear that they will leave his employment or refuse to work[1]. In consequence wages will rise. But experience shows that (whether they are governed by sliding scales or not) they seldom rise as much in proportion as prices; and therefore they do not rise nearly as much in proportion as profits.

First difference. Profits fluctuate with prices and in even greater ratio:

but the wages of employés lag behind, and their fluctuations are less.

Another aspect of the same fact is that when trade is bad, the employé at worst is earning nothing, but the employer's outgoings are likely to exceed his incomings, particularly if he is using much borrowed capital; and in that case his gross Earnings of Management are a negative quan-

[1] At a later stage we shall have to consider the causes and consequences of the facts that Trade unions are strongest, and the proportion of successful to unsuccessful strikes is the largest when trade is prosperous.

tity; that is, he is losing his capital[1]. In very bad times this happens to a great number, perhaps the majority of undertakers; and it happens almost constantly to those who are less fortunate, or less able, or less well fitted for their special trade than others.

Second difference. The profits of individuals differ more widely than ordinary earnings do, and their average value is overestimated, because those who lose all their capital are lost from sight.

§ 8. To pass to another point, the number of those who succeed in business is but a small percentage of the whole; and in their hands are concentrated the fortunes of others several times as numerous as themselves, who have made savings of their own, or who have inherited the savings of others and lost them all, together with the fruits of their own efforts, in unsuccessful business. In order therefore to find the average profits of a trade we must not divide the aggregate profits made in it by the number of those who are reaping them, nor even by that number added to the number who have failed: but from the aggregate profits of the successful we must subtract the aggregate losses of those who have failed, and perhaps disappeared from the trade; and we must then divide the remainder by the sum of the numbers of those who have succeeded and those who have failed. It is probable that the true gross Earnings of Management, that is, the excess of profits over interest, is not on the average more than a half, and in some risky trades not more than a tenth part, of what it appears to be to persons who form their estimate of the profitableness of a trade by observation only of those who have secured its prizes. There are however, as we shall presently see, reasons for thinking that the risks of trade are on the whole diminishing rather than increasing[2].

[1] In this connection compare the Note at the end of the chapter before last.

[2] A century ago many Englishmen returned from the Indies with large fortunes, and the belief spread that the average rate of profits to be made there was enormous. But, as Sir W. Hunter points out (*Annals of Rural Bengal*, Ch. VI.), the failures were numerous, but only "those who drew prizes in the great lottery returned to tell the tale." And at the very time when this was happening, it used commonly to be said in England that the families of a rich man and his coachman would probably change places within three generations. It is true that this was partly due to the wild extravagance common among young heirs at that time, and partly to the difficulty of finding secure investments for their capital. The spread of sobriety and education has contributed to the stability of the wealthy classes of England, almost as much as the growth of methods of investment, which enable the heirs of a rich man to draw a secure and lasting income

Third difference. The true earnings of effort are nearly always a considerable part of the income of the artisan and professional man; but not of the business undertaker.

§ 9. We may pass to another difference between the fluctuations of profits and ordinary earnings. We have seen that, when the artisan or professional man has once obtained the skill required for his work, a part of his earnings are for the future really a Quasi-rent of the capital and labour invested in fitting him for his work, in obtaining his start in life, his business connections, and generally his opportunity for turning his faculties to good account; and only the remainder of his income is true earnings of effort. But this remainder is generally a large part of the whole. And here lies the contrast. For when a similar analysis is made of the profits of the undertaker of business, the proportions are found to be different: in his case nearly all is Quasi-rent.

For fluctuations in the activity of his business do not cause proportionate fluctuations of his own exertions.

The Quasi-rent which the undertaker of business on a large scale gets from the capital, Material and Immaterial, invested in his business is so great, and liable to such violent fluctuations from a considerable negative to a large positive quantity, that he often thinks very little of his own labour in the matter. If profitable business opens out to him, he regards the harvest accruing from it as almost pure gain; there is so little difference between the trouble of having his business on his hands only partially active, and that of working it to its full capacity, that as a

from his wealth though they do not inherit the business ability by which he acquired it. There are however even now districts in England in which the majority of manufacturers are workmen or the sons of workmen. And in America, though foolish prodigality is perhaps less common than in England, yet the greater changefulness of conditions, and the greater difficulty of keeping a business abreast of the age, have caused it commonly to be said that a family passes "from shirt sleeves to shirt sleeves" in three generations. Mr Wells says (*Recent Economic Changes*, p. 351), "There has long been a substantial agreement among those competent to form an opinion, that ninety per cent. of all the men who try to do business on their own account fail of success." And Mr J. H. Walker gives (*Quarterly Journal of Economics*, Vol. II. p. 448) some detailed statistics with regard to the origin and careers of the manufacturers in the leading industries of Worcester in Massachusetts between 1840 and 1888. More than nine-tenths of them began life as journeymen; and less than ten per cent. of the sons of those who were on the list of manufacturers in 1840, 1850 and 1860, had any property in 1888, or had died leaving any. And as to France, M. Leroy Beaulieu says (*Repartition des Richesses*, Ch. XI.) that out of every hundred new businesses that are started twenty disappear almost at once, fifty or sixty vegetate neither rising nor falling, and only ten or fifteen are successful.

rule it scarcely occurs to him to set off his own extra labour as a deduction from those gains: they do not present themselves to his mind as to any considerable extent earnings purchased by extra fatigue, in the same way as the extra earnings got by working over-time do to the artisan. This fact is the chief cause, and to some extent the justification, of the imperfect recognition by the general public and even by some economists of the fundamental unity underlying the causes that determine normal profits and normal wages.

Fourth difference. Although rare abilities in any occupation command an income which is of the nature of Rent, at least so long as we consider the individual only, yet this element is specially prominent in profits.

§ 10. Closely allied to the preceding difference is another. When an artisan or a professional man has exceptional natural abilities, which are not made by human effort, and are not the result of sacrifices undergone for a future gain, they enable him to obtain a Surplus income over what ordinary persons could expect from similar exertions following on similar investments of capital and labour in their education and start in life; a Surplus which is of the nature of Rent[1].

But, to revert to a point mentioned at the end of last chapter, the class of business undertakers contains a disproportionately large number of persons with high natural ability; since, in addition to the able men born within its ranks it includes also a large share of the best natural abilities born in the lower ranks of industry. And thus while Profits on capital invested in education is a specially important element in the incomes of professional men taken as a class, the Rent of rare natural abilities may be regarded as a specially important element in the incomes of business men, so long as we consider them as individuals. (In relation to normal value the earnings even of rare abilities are, as we have seen, to be regarded rather as a Quasi-rent than as a Rent proper.)

Exceptions to this rule.

But though this is true on the whole, there are very great exceptions. In the case of the humdrum business man, who has inherited a good business and has just sufficient force to keep it together, his income consists chiefly of profits on the investment of capital in the material plant of his business, and in its immaterial internal organization and external connections.

[1] See Book VII. Ch. VI. § 8, especially the last paragraph.

And on the other hand the greater part of incomes earned by exceptionally successful barristers, and writers, and painters, and singers, and jockeys may be classed as the Rent of rare natural abilities—so long at least as we regard them as individuals, and are not considering the dependence of the normal supply of labour in their several occupations on the prospects of brilliant success which they hold out to aspiring youth.

Changes in the Industrial Environment affect the profits of individual businesses more than they do ordinary earnings.

The Quasi-rent of a particular business is often very much affected by changes in its Industrial Environment and Opportunity (its *Conjunctur*). But similar influences affect the Quasi-rent of the skill of many classes of workers. The discovery of rich copper-mines in America and Australia lowered the Quasi-rent of the skill of Cornish miners, so long as they stayed at home: and every new discovery of rich mines in the new districts raised the Quasi-rent of the skill of those miners who had already gone there. And again, the growth of a taste for theatrical amusements while raising the normal earnings of actors, and inducing an increased supply of their skill, raises the Quasi-rent of the skill of those already in the profession, a great part of which is, from the point of view of the individual, a Rent of rare natural qualities. Not nearly all these changes in the Industrial Environment are local in their action: but the chief of them are. And this brings us to consider again Situation Rent in connection with the general problem of Demand and Supply in relation to Land[1].

[1] General Walker's excellent services with regard to the causes that determine Wages on the one hand and Earnings of Management on the other, make it all the more to be regretted that instead of developing the old tradition that all earnings of rare natural abilities have in them, from the point of view of the individual, something of the nature of Rent, he has worked out only that side of the tradition which relates to Earnings of Management. And his treatment of that side does not appear altogether satisfactory. He maintains (*Political Economy*, § 311) that Profits do not form a part of the price of manufactured products; and he does not limit that doctrine to short periods, for which, as we have seen, the income derived from all skill whether exceptional or not, whether that of an employer or a workman, may be regarded as a Quasi-rent. And he uses the word "Profits" in an artificial sense; for, having excluded interest altogether from profits, he assumes that the "No-profits employer" earns "on the whole or in the long run the amount which he could have expected to receive as wages if employed by others" (*First Lessons*, 1889, § 190): that is to say, the "No-profits employer" obtains, in addition to interest on his capital, what we have called

the normal Net Earnings of Management, not indeed of men of extraordinary ability, but of men of such ability as his is. Thus Profits in General Walker's sense probably exclude at least four-fifths of what are ordinarily classed as Profits in England (the proportion would be rather less in America, and rather more on the Continent than in England). So that his doctrine would appear to mean only that that part of the employer's income, which is due to exceptional abilities or good fortune, does not enter into price. But, as we have seen, the prizes as well as the blanks of every occupation, whether it be that of an employer or not, take their part in determining the number of persons who seek that occupation and the energy with which they give themselves to their work: and therefore do enter into normal supply price. General Walker appears to rest his argument mainly on the important fact, which he has done much to make prominent, that the ablest employers, who in the long run get the highest profits, are as a rule those who pay the highest wages to the workman and sell at the lowest price to the consumer. But it is an equally true and an even more important fact that those workmen who get the highest wages are as a rule those who turn their employers' plant and material to best account (see Book VII. Ch. IV. § 1), and thus enable him both to get high profits for himself and to charge low prices to the consumer. And therefore the argument, in so far as it is valid at all, applies to the "rare ability" part of the earnings of all kinds of labour, as much as of Earnings of Management. But for the reasons given in the last paragraph of the sixth chapter of this Book, the analogy between the rent of land and the earnings of rare natural abilities cannot safely be pressed far.

CHAPTER X.

DEMAND AND SUPPLY IN RELATION TO LAND. PRODUCER'S SURPLUS.

The rent of land is a species of a large genus. For the present we suppose land to be cultivated by its owners.

§ 1. WE have seen that the rent of land is no unique fact, but simply the chief species of a large genus of economic phenomena; and that the theory of the rent of land is no isolated economic doctrine, but merely one of the chief applications of a particular corollary from the general theory of demand and supply. In the present Chapter we have to study those incidents of the rent of land which differentiate it from other species belonging to the same genus: but many of them are connected with special forms of land tenure; and in order to avoid these, we will begin by supposing that the cultivation of the land is undertaken by its owner.

Résumé of the results reached in Book VI. with regard to Rent and Quasi-rent.

We have seen that the income expected to be derived from the investment of capital and effort in making any sort of appliances for producing a commodity, affects the action of those who are thinking of investing capital and effort in making similar appliances and thus takes a part in determining the true (or long-period) normal supply price of the commodity. But we saw also that, when that investment has once been effected, whether it be in making a loom, in building a factory, or in draining a field, the income derived from it will for the future be determined by the price of the products in making which it can be used: and therefore, that when we are considering variations in price extending over periods too short to allow for any great change in the total supply of those appliances, we may regard the

income derived from them as being for that period a Producer's Surplus or Quasi rent. It will consist, of course, of the excess of the value of the commodities produced by them over that of the direct outlay of new and additional effort and capital required for the work.

Application of these results to land.

Next, assuming that we can theoretically distinguish those productive powers of land which are "natural" or "inherent" in it, from those which have been imparted to it by man's action, we have seen that that part of the income derived from land which results from the former, has an eminent right to be called a Producer's Surplus in a country the land of which is already occupied. For, although in new countries the inducements to settlers to take up new land depend in a great measure on their prospect of reaping a high income from its natural fertility, and although this income enters for the time into the normal supply price of produce, yet, when all the land has been long taken up, those who are doubting how much capital and effort to apply in cultivating it have to be guided by the experience of those who, like themselves, could look forward only to reaping the fruits of the land and not also to earning title-deeds to fresh soil[1].

[1] Comp. Book VI. Ch. III. §§ 2, 3. This eminent claim to be called a Producer's Surplus is not confined to the income derived from land or other (Real) immovable property, such as mineral springs (comp. Bk. VI. Ch. II. § 2, 3), but extends to that derived from all things the supply of which cannot be increased. For instance, suppose that a meteoric shower of a few thousand stones as hard as diamonds, but very large, fell all in one place; so that they were all picked up at once, and no amount of search could find any more. These stones, able to cut the hardest material, would revolutionize many branches of industry; and the owners of them would have a differential advantage in production that would afford a large Producer's Surplus: this would be a true economic Rent, whether they used the stones themselves or loaned them out to manufacturers, though only in the latter case would it be called rent. Its amount would be determined by the marginal services the stones rendered in production; and these would in the main be governed under the Law of Substitution by the equivalent services of chilled steel and other cutting tools.

Again, if the stones were of exceptional splendour, and useful for ornament rather than for manufacturing purposes, they might be worn by their owners, or let out to be worn by others; and the money value of the satisfactions they rendered would be a true rent, corresponding to the money value of the satisfactions derived from a building site of exceptional beauty, whether its owner lives on it or lets it to others. Similar remarks apply to pictures by a deceased artist. [It has already been noticed that the "rental value" of a country includes rents which the owners of land and houses who keep them in their own occupation are supposed to pay to themselves; and on the same plan, even when a thing is

The income attributed to the inherent properties of land.

Of the "inherent" properties of land, the chief are its extension and its geographical relations[1]. For it is to these that it owes that income of heat and light and air and rain, which man cannot appreciably affect; and those advantages of situation, many of which are beyond man's control, while but few of the remainder are the direct result of the investment of capital and effort in the land by its individual owners. These are the chief of its properties, the supply of which is not dependent on human effort, and which would therefore not be increased by extra rewards to that effort: and a tax on which would always fall exclusively on the owners[2].

The income derived from permanent improvements.

On the other hand those chemical or mechanical properties of the soil, on which its fertility largely depends, can be modified, and in extreme cases entirely changed by man's action[3]. But the process is often a slow one; and the income derived from gradual improvements does not affect the supply of them appreciably within short periods; and is of the nature of a Quasi-rent; while in extreme cases, such for instance as the drainage of the Lincolnshire fens, which cannot be repeated, and the experience from which does not appreciably affect the enterprise of modern cultivation, it may be regarded for all practical purposes as a true rent. A tax on the income derived from improvements which, though capable of general application are yet slowly made and slowly exhausted, would not appreciably affect the supply of them during a short period, nor therefore the supply of produce due to them; and would consequently fall in the main on the owner. But in a long period it would

used by its owner, we may speak of the money value of the satisfactions afforded by it, as a Producer's Surplus, he being supposed to use the thing to produce the satisfactions for himself. This Surplus is a different thing from a Consumer's Surplus, which is the excess of the money value to a person of the satisfactions which he derives from a thing over the price he has to pay for it.]

[1] Comp. Book IV. Ch. II. § 1, and Book VI. Ch. IV., especially § 3, for exceptions to the rule that Situation Rent does not directly depend on the owner's outlay.

[2] For a like reason, a tax on the stones, in the previous illustration, would fall always and exclusively on their owners: a "leaseholder" of the land or the stones for a given time at a fixed rent being regarded as an owner for that time subject to a mortgage; but to this point we shall return.

[3] See Book IV. Ch. II.

diminish the supply of them, would raise the normal supply price of produce and fall on the consumer[1].

The income derived from applications of capital and labour that yield their returns quickly.

Turning lastly to the capital and effort that are directed to preparing a seed bed and sowing crops, to supplying and tending cattle, &c., we find that the gains expected from such investments of capital and labour exercise an immediate influence on the action of producers, and therefore enter into the supply price of produce even for short periods; and that they contain little or nothing of the nature of a Quasi-rent. A tax therefore on this part of the income derived from land would immediately act on the supply of produce and be transferred at once from the producer to the consumer[2].

Résumé and application of the discussion in Book IV. as to the action of the Law of Diminishing Return.

§ 2. Now let us revert to our study of the Law of Diminishing Return in agriculture in the fourth Book; still supposing that the owner of the land undertakes its cultivation, so that our reasoning may be general, and independent of the incidents of particular forms of land tenure.

We saw how the return to successive doses of capital and labour[3], though it may increase for the first few doses, will begin to diminish, when the land is already well cultivated. The cultivator continues to apply additional capital and labour, till he reaches a point at which the return is only just sufficient to repay his outlay and reward him for his

[1] So if in our last illustration we had supposed that the stones were scattered over the surface of the earth, and that a long and laborious search might expect to be rewarded by finding one here and there, the income derived from them would be a Quasi-rent determined almost entirely by the value of the services they rendered; and a tax on them would at first fall almost exclusively on their owners. But in the long run the tax would diminish the supply, and therefore fall in the main on consumers of the things made by them.

[2] This case resembles that of a tax on the meteoric stones, on the supposition that they were brittle and soon destroyed, and that fresh supplies of them would be found quickly, though at the cost of much labour.

The truth indicated by this illustration may be presented in a more general form thus:—A tax on any set of things that are already produced, falls exclusively on the owners of those things, if it is not accompanied by a tax, or the expectation of a tax, on the production or bringing into use similar or rival things. If it falls also on all rival things, and the supply of them is not absolutely fixed, its incidence will be gradually transferred to the consumer.

[3] As to the interpretation of this term, see the Note at the end of Book IV. Ch. III. Since that Note was printed the results of some experiments by the Arkansas Experimental Station (see *The Times*, 18 Nov. 1889), of a character somewhat similar to those of Sir John Lawes, have illustrated well the notion of measuring the return to the marginal dose of capital and labour. Four plots of

own work. That will be the dose on the margin of cultivation, whether it happens to be applied to rich or to poor land; an amount equal to the return to it will be required, and will be sufficient to repay him for each of his previous doses. The excess of the gross produce over this amount is his Producer's Surplus.

He looks forward as far as he can: but it is seldom possible to look forward very far. And at any given time he takes for granted all that richness of the soil which is due to permanent improvements; and the Quasi-rent, or income derived from it, together with that due to the original qualities of the soil, constitutes his Producer's Surplus or Rent. Henceforth it is only the income derived from new investments that appears as earnings and profits: he carries these new investments up to the margin of profitableness; and his Producer's Surplus or Rent is the excess of the gross income from the improved land over what is required to remunerate him for the fresh doses of capital and labour he annually applies.

This Surplus depends on firstly the richness of the land, and secondly the relative values of those things which he has to sell and those things which he needs to buy. The richness or fertility of the land, we have seen, cannot be measured absolutely, for it varies with the nature of the crops raised, and with the methods and intensity of cultivation. Two pieces of land cultivated always by the same man with equal expenditures of capital and labour, are likely, if they yield equal crops of barley, to give unequal crops of wheat; if they return equal crops of wheat when cultivated slightly or in a primitive fashion, they are likely

an acre each were treated exactly alike except in the matter of ploughing and harrowing, with the following result:—

Plot.	Cultivation.	Crop yield bushels per acre.
1	Ploughed once	16
2	Ploughed once and harrowed once . . .	18½
3	Ploughed twice and harrowed once . . .	21⅔
4	Ploughed twice and harrowed twice . .	23¼

to yield unequal crops when cultivated intensively, or on modern methods. Further, the prices at which the various requisites of the farm can be bought, and its various products sold, depend on the Industrial Environment; and changes in that are continually changing the relative values of different crops and therefore the relative values of land in different situations[1].

The cultivators must be supposed to be of normal ability and enterprise.

Lastly, we suppose the cultivator to be of normal ability relatively to the task he has undertaken, and the circumstances of time and place. If he is of less ability his actual gross produce will be less than that which normally should come from the land: it will be yielding to him less than its true Producer's Surplus. If, on the contrary, he is of more than normal ability, he will be getting in addition to the Producer's Surplus due to the land, some Producer's Surplus due to rare ability[2].

A rise in the real value of produce generally raises the produce value of

§ 3. We have already traced in some detail the way in which a rise in the value of agricultural produce increases the Producer's Surplus measured in terms of produce from all lands, but especially from those where the Law of Diminishing Return acts but feebly[3]; and we saw that

[1] See Book IV. Ch. III., and Book VI. Ch. IV.

[2] England is so small and so thickly peopled, that even milk and vegetables which require to be marketed quickly, and even hay in spite of its bulk, can be sent across the country at no inordinate expense: while for the staple products, corn and live stock, the cultivator can get nearly the same net price in whatever part of England he is. For this reason English economists have ascribed to Fertility the first rank among the causes which determine the value of agricultural land; and have treated Situation as of secondary importance. They have often regarded the Producer's Surplus of land as the excess of the produce which it yields, over what is returned to equal capital and labour (applied with equal skill) to land that is so barren as to be on the margin of cultivation; without taking the trouble to state explicitly either that the two pieces of land must be in the same neighbourhood, or that separate allowance must be made for differences in the expense of marketing. But this method of speaking does not come naturally to economists in new countries, where the richest land may lie uncultivated, because it has not good access to markets. To them Situation appears at least coordinate with Fertility as a cause determining the value of land. They think of land on the margin of cultivation, as land far from markets; and the Producer's Surplus presents itself as the excess value of the produce from well-situated land over that which equal labour, capital (and skill), would get on the worst situated land; allowance being made for differences of fertility, if necessary.

[3] Book IV. Ch. III. § 3. Thus we saw that if the value of produce rises from OH' to OH (figs. 12, 13, 14), so that while an amount of produce OH was required

generally speaking it raises the value of poor lands relatively to rich: or in other words, that if a person anticipates a rise in the value of produce, he may expect a larger future income from investing a given sum of money in poor land at present prices than from investing it in rich land[1].

the surplus,

Next, the "real" Producer's Surplus, that is, the value of that Surplus measured in terms of general purchasing power, will rise relatively to its produce value, in the same ratio as the real value of produce has risen: that is to say, a rise in the value of produce causes a double rise in the value of Producer's Surplus.

and its real value even more.

The term the "real value" of produce is indeed ambiguous. Sometimes it is used to mean the amount of labour [of a given efficiency] that the produce will purchase: but we shall use the term "labour-value" to express that meaning; and by "real value" we shall mean the amount of necessaries, comforts, and luxuries of life that a given amount of produce will purchase. A rise in the labour-value of raw produce in general implies an increasing pressure of population on the means of subsistence; and in that case the rise of the Producers' Surplus from land would go together with, and be a sort of measure of the degradation of the people. But this is not true if an improvement of the arts of production, other than agricultural, has caused a rise in the real value of raw produce; for that would probably be accompanied by a rise in the total purchasing power of wages.

Necessity for distinguishing between changes in the labour value of produce, and in its general purchasing power.

§ 4. In all this it has been clear that the Producer's Surplus from land is an evidence not of the greatness of the bounty of nature, as was held by the Physiocrats and in a more modified form by Adam Smith; but of the inequality

Ricardo's doctrine with regard to the effects of improve-

to remunerate a dose of capital and labour before the rise, an amount OH' would suffice after the rise, then the Producer's Surplus will be increased a little in the case of lands of the class represented in fig. 12, with regard to which the Law of Diminishing Return acts quickly; much more with regard to the second class of lands (fig. 13), and most of all with regard to the third class (fig. 14).

[1] Ib. § 4. Comparing two pieces of land (figs. 16 and 17) with regard to which the Law of Diminishing Return acts in a similar way, but of which the first is rich and the second poor, we found that the rise of Producer's Surplus from AHC to $AH'C'$, caused by a rise in the price of produce in the ratio OH to OH', was much larger in proportion in the second case.

ments on Producer's Surplus, though often stated carelessly, was thought out carefully.

of that bounty, as regards the supply of the needs of any particular set of consumers; (for inequalities of situation relatively to the best markets are just as powerful causes of (Real) Producer's Surplus as are inequalities of absolute productiveness). This truth and its chief consequences, many of which are now so obvious, were first made manifest by Ricardo. He delighted to argue that no Surplus can be reaped from the ownership of those of nature's gifts the supply of which is everywhere practically unlimited: and in particular that there would be no Surplus from land if there were an unlimited supply of it all equally fertile and all equally accessible. He carried this argument further and showed that an improvement in the arts of cultivation, equally applicable to all soils (which is equivalent to a general increase in the natural fertility of land), will be nearly sure to lower the aggregate Corn Surplus and quite sure to lower the aggregate Real Surplus derived from the land that supplies a given population with raw produce. He pointed out further that if the improvements affected chiefly those lands that were already the richest, it might raise the aggregate Surplus, but that if it affected chiefly the poorer class of lands it would lower that aggregate very much.

It is quite consistent with this proposition to admit that an improvement in the arts of cultivation of the land of England now would raise the aggregate Surplus from her land, if it were not accompanied by an equal improvement in the arts of production in those countries from which she imports raw produce, or which comes to the same thing for this purpose, by an improvement in the means of communication with them. And as Ricardo himself says, improvements that apply equally to all the land supplying the same market, "as they give a great stimulus to population, and at the same time enable us to cultivate poorer lands with less labour, are ultimately of immense advantage to the landlords[1]."

The argument so far applicable to nearly

§ 5. The argument of this chapter so far is applicable to all systems of land tenure which recognize private ownership of land in any form. For it is concerned with that

[1] Foot-note to his third Chapter.

all systems of land tenure.

Producer's Surplus which accrues to the owner if he cultivates his land himself; and, if not, then it accrues to him and his tenants, regarded as a firm engaged in the business of cultivation, whatever be the division which custom or law or contract may have arranged between them with regard to their several shares of the cost of cultivation on the one hand, and the fruits of the cultivation on the other.

But the broad line of division between the landlord's and the farmer's share in the modern English system is also that which is most important for science.

At the present day, in those parts of England in which custom and sentiment count for least, and free competition and enterprise for most, in the bargaining for the use of land, it is commonly understood that the landlord supplies, and in some measure maintains, those improvements which are slowly made and slowly worn out; and that he requires of his tenant the whole Producer's Surplus which the land thus equipped is estimated to afford in a year of normal harvests and normal prices, after deducting enough to replace the farmer's capital with normal profits. In this estimate it is implicitly assumed that the farmer is a man of normal ability and enterprise for that class of holding; and therefore, if he rises above that level, he will himself reap the benefit; and, if he falls below it, will himself bear the loss, and perhaps ultimately leave the farm. In other words, that part of the income derived from the land which has to be regarded as a Rent or a Quasi-rent, that is, as Producer's Surplus for all periods of moderate length, goes to the landlord; while that part which is to be regarded, even for short periods, as profits entering directly into the normal price of the produce, is the tenant's share.

The more fully therefore the distinctively English features of land tenure are developed, the more nearly is it true that the line of division between the tenant's and the landlord's share coincides with the deepest and most important line of cleavage in economic theory; viz., that between the Quasi-rents which do not, and the profits which do, directly enter into the normal supply prices of produce for periods of moderate length. This fact perhaps more than any other was the cause of the ascendancy of English economic theory early in this century; it helped English economists to pioneer the way so far ahead that even in our own genera-

tion, when as much intellectual activity has been devoted to economic studies in other countries as in England, nearly all the new constructive ideas are found to be but developments of others which were latent in the older English work. The fact itself appears accidental: but perhaps it was not. For it is no accident that this particular line of cleavage is that which involves the least friction, the least waste of time and trouble in checks and counter-checks. It may be doubted whether the so-called English system will endure. It has great disadvantages, and it may not be found the best in a future stage of civilization. But when we come to compare it with other systems, we shall see what great advantages it afforded to a country, which pioneered the way for the world in the development of free enterprise; and which therefore was impelled early to adopt all such changes as give freedom and vigour, elasticity and strength.

NOTE ON RICARDO'S DOCTRINES AS TO THE INCIDENCE OF TAXES AND THE INFLUENCE OF IMPROVEMENTS IN AGRICULTURE.

Much has already been said about the excellence of Ricardo's thought and the imperfections of his expression of it, and in particular notice has been taken of the causes which led him to lay down the Law of Diminishing Return without proper qualifications. Similar remarks apply to his treatment of the influence of improvements and the incidence of taxes in agriculture. He was especially careless in his criticisms of Adam Smith; and as Malthus justly said (Summary of Section x. of his *Political Economy*), "Mr Ricardo, who generally looks to permanent and final results, has always pursued an opposite policy in reference to the rents of land. It is only by looking to temporary results, that he could object to Adam Smith's statement, that the cultivation of rice or of potatoes would yield higher rent than corn." And Malthus was perhaps not far wrong when he added: —"Practically, there is reason to believe that, as a change from corn to rice must be gradual, not even a temporary fall of rent would take place."

Nevertheless, in Ricardo's time it was of great practical importance to insist, and it is of much scientific interest even now to know, that in a country which cannot import much corn, it is very easy so to adjust taxes on cultivation and so to hinder improvements as to enrich the landlords for a time and to impoverish the rest of the people. No doubt when the people had been thinned by want, the landlords would

suffer in pocket: but that fact took little of the force from Ricardo's contention that the enormous rise of agricultural prices and rents which occurred during his life was an indication of an injury to the nation beyond all comparison greater than the benefits received by the landlords. But let us now pass in review some of those arguments in which Ricardo delighted to start from sharply defined assumptions, so as to get clear net results, which would strike the attention; and which the reader might combine for himself so as to make them applicable to the actual facts of life.

Let us first suppose that the "corn" raised in a country is absolutely necessary; i.e. that the demand for it has no elasticity and that any change in its marginal cost of production would affect only the price that people paid for it, and not the amount of it consumed. And let us suppose that no Corn is imported. Then the effect of a tax of one-tenth on Corn would be to cause its real value to rise till nine-tenths as much as before would suffice to remunerate the marginal dose, and therefore every dose. The gross Corn Surplus on every piece of land would therefore remain the same as before; but one-tenth being taken away as a tax, the remainder would be nine-tenths of the old Corn Surplus. Since, however, each part of it would have risen in real value in the ratio of ten to nine, the Real Surplus would remain unchanged.

But the assumption that the demand for produce is absolutely inelastic is a very violent one. The rise in price would in fact be sure to cause some falling off in the demand at once: and therefore the value of Corn would never rise in full proportion to the tax, and less capital and labour would be applied in the cultivation of all lands. There would thus be a diminution in the Corn Surplus from all lands, but not in the same proportion from all; and since a tenth of the Corn Surplus would be taken by the tax, while the value of each part of it would have risen in less than the ratio of ten to nine, there would be a double fall in the Real Surplus. (The diagrams in Book IV. to which we have just referred suggest at once translations of those reasonings into the language of geometry.)

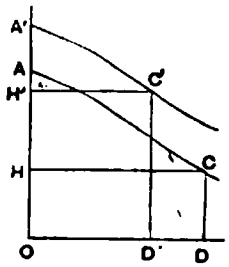
The immediate fall would be very great under modern conditions in which free importation of Corn prevents its real value from being much raised by the tax; and the same result would follow gradually, even in the absence of importation, if the rise in its real value diminished the numbers of the people; or, what is at least as probable, if it had the effect of lowering the standard of living, and the efficiency of the working population. These two effects would operate very much in the same way on the Producer's Surplus; both would make labour dear to the employer, while the latter would also make real Time wages low to the worker.

Ricardo's reasonings on all these questions are rather difficult to follow because he often gives no hint when he passes from results

which are "immediate" and relate to a "short period" relatively to the growth of population, and those which are "ultimate," and relate to a "long period" in which the labour value of raw produce would have time materially to affect the numbers of the people and therefore the demand for raw produce. When such interpreting clauses are supplied, very few of his reasonings will be found invalid.

We may now pass to his argument with regard to the influence of improvements in the arts of agriculture. He divides them into two classes, his treatment of the first of which has a special scientific interest. It consists of those improvements which "enable us to obtain the same produce with less capital, and without disturbing the difference between the productive powers of the successive portions of capital." Assuming as before that the demand for Corn has no elasticity, he proved that capital would be withdrawn from the poorer lands (and from the more intensive cultivation of the richer lands), and therefore the Surplus measured in Corn, the Corn Surplus—as we may say—obtained by applications of capital under the most favourable circumstances, will be a Surplus relatively to lands not so poor as those which were on the margin of cultivation before: and the differential productiveness of any two applications of capital remaining, by hypothesis, unchanged, the Corn Surplus must necessarily fall, and of course the real value and the labour value of the Surplus will fall much more than in proportion.

This may be made clear by the adjoining figure; in which curve *AC* represents the return which the land of the whole country, regarded as one farm, makes to doses of capital and labour applied to it, these doses being arranged not in the order of their application, but in that of their productiveness. In equilibrium *OD* doses are applied, the price of the Corn being such that a return *DC* is just sufficient to remunerate a dose; the whole amount of Corn raised being represented by the area *AODC*, of which *AHC* represents the aggregate Corn Surplus. [We may pause to notice that the only change in the interpretation of this diagram which is required by our making it refer to the whole country instead of a single farm, arises from our not being able now, as we could then, to suppose that all the several doses of capital are applied in the same neighbourhood, and that therefore the values of equal portions (of the same kind) of produce are equal. We may however get over this difficulty by reckoning the expenses of transporting the produce to a common market as part of its expenses of production; a certain part of every dose of capital and labour being assigned to the expenses of transport.]



Now an improvement of Ricardo's first class will increase the

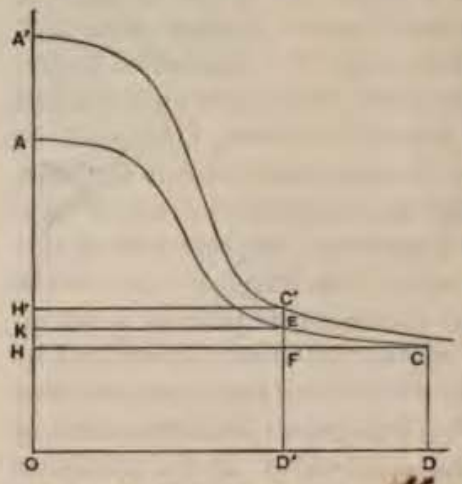
return to the dose applied under the most favourable conditions from OA to OA', and the returns to other doses, not in like *proportion*, but by equal *amounts*. The result is that the new produce curve $A'C'$ will be a repetition of the old produce curve AC, but raised higher than it by the distance AA'. If, therefore, there were an unlimited demand for corn, so that the old number of doses, OD, could be profitably applied, the aggregate Corn Surplus would remain the same as before the change. But in fact such an immediate increase of production could not be profitable; and therefore an improvement of this kind must necessarily lessen the aggregate Corn Surplus. And on the assumption made here by Ricardo that the aggregate produce is not increased at all, only OD' doses will be applied, OD' being determined by the condition that $A'OD'C'$ is equal to $AODC$; and the aggregate Corn Surplus will shrink down to $A'H'C'$. This result is independent of the shape of AC; and, which is the same thing, of the particular figures selected for the numerical illustration which Ricardo used in proof of his argument.

And here we may take the occasion to remark that numerical instances can as a rule be safely used only as illustrations and not as proofs: for it is generally more difficult to know whether the result has been implicitly assumed in the numbers shown for the special case than it is to determine independently whether the result is true or not. Ricardo himself had no mathematical training. But his instincts were unique; and very few trained mathematicians could tread as safely as he over the most perilous courses of reasoning. Even the acute logical mind of Mill was unequal to the task.

Mill characteristically observed that it is much more probable that an improvement would increase the returns to capital applied to different classes of land in equal proportions than by equal amounts. (See his second case, *Political Economy*, Book IV. Ch. III. § 4.) He did not notice that by so doing he cut away the basis of Ricardo's sharply defined argument, which was that the change did not alter the differential advantages of different applications of capital. And though he arrived at the same result as Ricardo, it was only because his result was implicitly contained in the figures he chose for his numerical illustration.

The adjoining figure tends to show that there is a class of economic problems which cannot be safely treated by any one of less genius than Ricardo without the aid of some apparatus, either of mathematics or of diagrams, that present as a continuous whole the schedules of economic forces, whether with regard to the Law of Diminishing Return or to those of Demand and Supply. The curve AC has the same interpretation in this figure as in the last; but the improvement has the effect of increasing the return to each dose of capital and labour by one-third, i.e. in an equal proportion and not by an equal amount: and the new produce curve $A'C'$ stands much higher

above AC at its left end than at its right. Cultivation is restricted to OD' doses, where the area $A'OD'C'$, representing the new aggregate product, is as before equal to $AODC$; and $A'H'C'$ is as before the new aggregate Corn Surplus. Now it can be easily proved that $A'H'C'$ is four-thirds of AKE, and whether this is greater or less than AHC depends upon the particular shape assigned to AC. If AC be a straight line or nearly a straight line (both Mill's and Ricardo's numbers represented points on a straight Produce line) $A'H'C'$ would be less than AHC; but with the shape assigned to AC in our figure $A'H'C'$ is greater than AHC. And thus Mill's argument is, while Ricardo's is not, dependent for its conclusion on the particular shape assumed by them for the gross produce curve.



(Mill assumes that the cultivated part of a country consists of three qualities of land, yielding at an equal expense 60, 80, and 100 bushels; and he then shows that an improvement which increased the return to each dose of capital by one-third, would lower corn rents in the ratio of 60 to $26\frac{2}{3}$. But if he had taken the distribution of fertility in a country to be such that the land consisted of three qualities yielding at an equal expense 60, 65, and 115 bushels, as is done roughly in our figure, he would have found in that case the improvement would raise corn rents in the ratio 60 to $66\frac{2}{3}$.)

CHAPTER XI.

DEMAND AND SUPPLY IN RELATION TO LAND, CONTINUED. LAND TENURE.

§ 1. In early times, and in some backward countries even in our own age, all rights to property depend on general understandings rather than on precise laws and documents. In so far as these understandings can be reduced to definite terms and expressed in the language of modern business, they are generally to the following effect:—The ownership of land is vested not in an individual but in a firm of which one member or group of members is the sleeping partner, while another member or group of members (it may be a whole family) is the working partner[1].

Early forms of Land-tenure have generally been based on partnerships, the terms of which are determined by tradition rather than by conscious contract; the so-called landlord is generally the sleeping partner, and his share of the produce is not a true rent.

The sleeping partner is sometimes the ruler of the State, sometimes he is an individual who inherits what was once the duty of collecting the payments due to this ruler from the cultivators of a certain part of the soil; but what, in the course of silent time, has become a right of ownership, more or less definite, more or less absolute. If, as is generally the case, he retains the duty to make certain payments to the ruler of the State, the partnership may be regarded

[1] The sleeping partner may be a village community; but recent investigations, especially those of Mr Seebohm, have given cause for believing that the communities were not often "free" and ultimate owners of the land. For a good summary of the controversy as to the part which the village community has played in the history of England the reader is referred to the first chapter of Prof. Ashley's *Economic History*. Mention has already been made of the ways in which primitive forms of divided ownership of the land hindered progress (Book I. Ch. II. § 2).

as containing three members, of whom two are sleeping partners[1].

The sleeping partner, or one of them, is generally called the proprietor, or landholder or landlord, or even the landowner. But this is an incorrect way of speaking, if he is restrained by law, or by custom which has the force of law, from turning the cultivator out of his holding either by an arbitrary increase of the payments exacted from him or by any other means. In that case the property in the land vests not in him alone, but in the whole of the firm of which he is only the sleeping partner; the payment made by the working partner is not a rent at all, but is that fixed sum, or that part of the gross proceeds as the case may be, which the constitution of the firm binds him to pay; and, in so far as the custom or law which regulates these payments is fixed and unalterable, the theory of rent has but little direct application.

But custom is much more plastic than at first appears,

§ 2. But in fact the payments and dues which custom is supposed to stereotype nearly always contain elements which are incapable of precise definition, while the accounts of them handed down by tradition are embodied in loose and vague impressions, or at best are expressed in words that make no attempt at scientific exactness.

as is shown even by recent English history.

We can watch the influence of this vagueness in the agreements between landlord and tenant even in modern England; for they have always been interpreted by the aid of customs, which have ever been imperceptibly growing and dwindling again, to meet the changing exigencies of

[1] The firm may be further enlarged by the introduction of an intermediary who collects payments from a number of cultivators, and after deducting a certain share, hands them over to the head of the firm. He is not a middleman in the sense in which the word is used ordinarily in England; that is, he is not a subcontractor, liable to be dismissed at the end of a definite period for which he has contracted to collect the payments. He is a partner in the firm, having rights in the land as real as those of the head partner, though, it may be, of inferior value. The case may be even more complex than this. There may be many intermediate holders between the actual cultivators and the person who holds direct from the State. The actual cultivators also vary greatly in the character of their interests; some having a right to sit at fixed rents and to be altogether exempt from enhancement, some to sit at rents which are enhanceable only under certain prescribed conditions, some being mere tenants from year to year.

successive generations. And the action of our own age in this matter differs from that of earlier ages chiefly in our greater consciousness of the process of change in these customs, and our greater willingness to convert them into legal enactments, and to make them uniform[1].

Even now the adjustment of rents to the changes in the letting value of the land is partly tacit and almost unconscious.

And at the present day in spite of minute legislation and carefully drawn agreements, there remains a wide margin of uncertainty as to the amount of capital which the landlord will from time to time invest in maintaining and extending the farm buildings and other improvements. It is in these matters, quite as much as in his direct money relations with the tenant, that the generous and liberal landlord shows himself. And, what is specially important for the general argument of this chapter, alterations in the real net rent required of the tenant are as often made by a quiet readjustment of the shares of the expenses of working the farm that are borne by the landlord and the tenant as by a change in the money rent. Thus corporate bodies and many large private landowners often let their tenants go on from year to year, and without any attempt to make the money rents follow the changes in the real letting value of the land; and there are many farms which are not let on lease and yet the rent of which has nominally remained unchanged during the agricultural inflation which culminated in 1874, and during the depression which followed. But in the earlier period the farmer, who knew he was underrented, could not put pressure on his landlord to lay out capital in drainage or new buildings or even in repairs, and had to humour him as regards the game and in other

[1] Thus Mr Pusey's Committee of the House of Commons in 1848 reported, "That different usages have long prevailed in different counties and districts of the country, conferring a claim on an outgoing tenant for various operations of husbandry....That these local usages are imported into leases or agreements,...unless the terms of the agreement expressly, or by implication, negative such a presumption. That in certain parts of the country a modern usage has sprung up, which confers a right on the outgoing tenant to be reimbursed certain expenses... other than those above referred to....That this usage appears to have grown out of improved and spirited systems of farming, involving a large outlay of capital.... That these [new] usages have gradually grown into general acceptance in certain districts, until they have ultimately become recognized there as the custom of the country." Many of them are now enforced by law. See below § 9.

matters; while just now the landlord, who has a steady tenant, will do many things that are not stipulated for in the agreement in order to retain him. Thus, while the money rent has remained stationary, the real rent is changed.

Thus caution is needed when applying the Ricardian analysis to modern English land problems;

This fact is an important illustration of the general proposition, that the economic theory of rent, the Ricardian theory as it is sometimes called, does not apply to modern English land tenure without many corrections and limitations both as regards substance and form; and that a proper extension of these corrections and limitations will make the theory applicable to all forms of Mediæval and Oriental land tenure, in which any sort of private ownership is recognized. The difference is only one of degree.

as well as to earlier systems.

§ 3. But the difference of degree is very great, partly because in primitive times and backward countries the sway of custom is more undisputed; partly because, in the absence of scientific history, shortlived man has little better means of ascertaining whether custom is quietly changing than the fly, born to-day and dead to-morrow, has of watching the growth of the plant on which it rests; but chiefly because the conditions of partnership were expressed in terms that were seldom capable of exact definition and measurement.

For the terms of partnership in them were vague, elastic, and capable of unconscious modification in many ways.

For the share of the senior partner in the firm, or the landlord as we may for shortness call him, generally included, either with or without a right to a certain share of the produce, the right to claim certain labour services and dues, tolls and presents; and the amount which he obtained under each of those heads varied from time to time, from place to place, and from one landlord to another[1].

[1] Thus the value of a service of a certain number of days' work would depend partly on the promptness with which the labourer left his own hayfield when called to that of his landlord, and on the energy he put into his work. The dues such as that of turbary, which prevailed in the middle ages, that is, the duty to allow the landlord's pigeons to devour unmolested the tenant's crops, were astonishingly burdensome in some cases. There was great variety in such charges as those made for the compulsory grinding of corn in the lord's mill; and the tolls levied on the lord's bridges and in his markets. Next, the fines or presents, or "abwabs" as they are called in India, which the tenant might be called on to pay, were elastic not only in their amounts but in the occasions on which they were levied. Under the Moguls the tenants in chief had often to pay a vast number of such imposts in addition to their nominally fixed share of the produce: and they passed these on, increased in weight and with additions of

The protection which custom afforded to the tenant was not indeed unimportant. He always knew pretty well what demands he would have to meet at any particular time. The moral sense of all around him, high and low, protested against any attempt on the part of his landlord to make a sudden and violent increase in the payments and dues, the tolls and fines which were recognized as usual; and thus custom rounded off the edges of change. Yet changes went on, smoothly for the most part, silently and almost imperceptibly, like the hour hand of a clock; but in the long run they were very thorough.

Whenever payments of all kinds made by the cultivator left him a margin beyond the necessaries of life for him and his family, together with those comforts and luxuries which were established by custom, the landlord was likely to use his superior strength to raise the payments in some form or other. If the chief payments were a certain share of the produce, he might increase that share: but, as that could seldom be done without an appearance of violence, he would be more likely to increase the number and weight of his minor imposts, or to insist that the lands be more intensively cultivated and a larger part of it be given to crops that cost much labour and are of great value[1].

their own, to the inferior tenants. The British Government has not levied them itself; but it has not been able, in spite of many efforts, to protect the inferior tenants from them. For instance, in some parts of Orissa, Sir W. W. Hunter found that the tenants had to pay, besides their customary rent, 33 different cesses. They paid whenever one of their children married, they paid for leave to erect embankments, to grow sugar-cane, to attend the festival of Juggernaut, &c. (*Orissa*, I. 55—9.)

[1] In India at the present time we see very various forms of tenure existing side by side, sometimes under the same name and sometimes under different names. There are places in which the raiyats and the superior holders own between them the property in the land subject to definite dues to Government, and where the raiyat is safe not only from being ejected, but also from being compelled by fear of violence to pay over to his superior holder more than that share of the Producer's Surplus which custom strictly prescribes. In that case the payment which he makes is, as has already been said, simply the handing over to the other partner in the firm of that share of the receipts of the firm which under the unwritten deed of partnership belongs to him. It is not a rent at all. This form of tenure, however, exists only in those parts of Bengal in which there have been no great recent dislocations of the people, and in which the police are sufficiently active and upright to prevent the superior holders from tyrannizing over the inferior.

In the greater part of India the cultivator holds directly from the Government

Metayage or rental by shares

§ 4. The question whether the payments made by the cultivator for the use of his land should be reckoned in money or in produce is of growing interest with reference to both India and England. But we may pass it by for the present and consider the more fundamental distinction

under a lease the terms of which can be revised at intervals. And the principles on which those leases are arranged, especially in the North-West and North-East, where new land is being settled, is to adjust the annual payments due for it to the probable Surplus Produce of the land, after deducting the cultivator's necessaries and his little luxuries, according to the customary standard of the place, and on the supposition that he cultivates with the energy and skill that are normal in that place. Thus as between man and man in the same place the charge is of the nature of economic rent. But, since unequal charges will be levied in two districts of equal fertility, of which one is cultivated by a vigorous and the other by a feeble population; its method of adjustment as between different districts is rather that of a tax, than a rent. For taxes are supposed to be apportioned to the net income which actually is earned, and rents to that which would be earned by an individual of normal ability: a successful trader will pay on ten times as large an actual income ten times as large a tax as his neighbour who lives in equally advantageous premises and pays equal rents.

The whole history of India records little of that quiet stability which has come over the rural parts of England since war, famine, and plague have ceased to visit us. Extensive movements seem to have been nearly always in progress, partly in consequence of the recurrence of famines (for, as the Statistical Atlas of India shows, there are very few districts which have not been visited at least once by a severe famine during this century); partly of the devastating wars which one set of conquerors after another has inflicted on the patient people; and partly of the rapidity with which the richest land reverts to a thick jungle. The land which has supported the largest population is that which, when deprived of its human inhabitants, most quickly provides shady harbours for wild beasts, for venomous snakes and for malaria; these prevent the return of the refugees to their old homes, and cause them often to wander far before they settle. When land has been depopulated, those who have the control over it, whether the Government or private persons, offer very favourable terms in order to attract cultivators from elsewhere; this competition for tenants very much influences the relations of cultivators and superior holders for a long distance around them; and therefore, in addition to the changes of customary tenure, which, though impalpable at any time, have been always going on, there have been in almost every place many epochs in which the continuity even of the former custom has been broken and keen competition has reigned supreme.

These disturbing forces of war, famine, and plague were frequent in mediæval England, but their violence was less. And further, the rate of movement of nearly all changes in India has been greater than it would have been if the average period of a generation were as long as in the colder climate of England.

Peace and prosperity therefore enable Indian populations to recover from their calamities more quickly; and the traditions which each generation holds of the doings of its fathers and grandfathers run back for a shorter time, so that usages of comparatively recent growth are more easily believed to have the sanction of antiquity. Change can move faster without being recognised as change.

between the "English" system of rental and that of holding land on "shares," as it is called in the new world, or the "Metayer"[1] system as it is called in the old.

has many forms in Europe and America.

In a great part of Latin Europe the land is divided into holdings, which the tenant cultivates by the labour of himself and his family, and sometimes, though rarely, that of a few hired labourers, and for which the landlord supplies not only buildings but cattle and sometimes even farm implements. In America there are few agricultural tenancies of any kind, but two-thirds of those few are small holdings let out to white men of the poorer class, or to freed negroes, on some plan by which labour and capital share in the produce[2].

It offers to the man without capital some of the advantages of co-operative production. But it involves much friction.

This plan enables a man who has next to no capital of his own to obtain the use of it at a lower charge than he could in any other way, and to have more freedom and responsibility than he would as a hired labourer; and thus the plan has many of the advantages of the three modern systems of Co-operation, Profit Sharing, and payment by Piece work[3]. But though the Metayer has more freedom than the hired labourer he has less than the English farmer.

[1] The term Metayer applies properly only to cases in which the landlord's share of the produce is one half; but it is usually applied to all arrangements of this kind whatever the landlord's share be. It must be distinguished from the Stock lease system in which the landlord provided part at least of the stock, but the tenant managed the farm entirely at his own risk subject to a fixed annual payment to the landlord for land and stock. This system, as well as the Metayer system, was much used in medieval England. (See Professor Rogers, *Six Centuries of Work and Wages*, Ch. x.)

[2] In 1880 74 per cent. of the farms of the United States were cultivated by their owners, 18 per cent. or more than two-thirds of the remainder were rented for a share of the produce, and only 8 per cent. were held on the English system. The largest proportion of farms that were cultivated by persons other than their owners were in the Southern States. In some cases the landowner—the farmer as he is called there—supplies not only horses and mules, but their feed; and in that case the cultivator—who in France would be called not a Metayer but a Maitre Valet—is almost in the position of a hired labourer paid by a share of what he gets, as is for instance a hired fisherman whose pay is the value of a part of the catch. The tenant's share varies from one-third where the land is rich and the crops such as to require little labour, to four-fifths where there is much labour and the landlord supplies little capital. There is much to be gained from a study of the many various plans on which the share contract is based (see the *Report of the Commissioners of Agriculture* for 1887, pp. 585—8).

[3] The relations between publisher and author on the "half-profits" system resemble in many ways those between landlord and metayer.

His landlord has to spend much time and trouble either of his own or of a paid agent in keeping the tenant to his work, and must charge for these a large sum which, though going by another name, is really Earnings of Management.

If the control of the landlord is slight the cultivation is poor;

For when the cultivator has to give to his landlord half of the returns to each dose of capital and labour that he applies to the land, it will not be to his interest to apply any doses the total return to which is less than twice enough to reward him. If then, he is free to cultivate as he chooses he will cultivate far less intensively than on the English plan; he will apply only so much capital and labour as will give him returns more than twice enough to repay himself: so that his landlord will get a smaller share even of those returns than he would have on the plan of a fixed payment[1].

This is the case in many parts of Europe, in which the tenant has practical fixity of tenure; and then it is only by constant interference that the landlord can control the amount of labour he puts on his farm and the use he makes of the farm cattle for work, the fruits of which he does not share with his landlord.

But even in the most stationary districts the amount and quality of the stock which custom requires the landlord to provide are being constantly, though imperceptibly, modified to suit the changing relations of demand and supply.

but if it is effective the results

And if the tenant has no fixity of tenure, the landlord can deliberately and freely arrange the amount of capital and labour supplied by the tenant and the amount of capital

[1] This can be most clearly seen by aid of diagrams of the same kind as those used in Book IV. Ch. III. A *tenant's-share curve* would be drawn standing one half (or one-third or two-thirds) as high above OD as AC does; the area below that curve would represent the tenant's share, that above the landlord's. OH being, as before, the return required to remunerate the tenant for one dose; he will, if left to his own devices, not carry cultivation beyond the point at which the tenant's-share curve cuts HC: and the landlord's will therefore be a less proportion of the returns to a slighter cultivation than under the English plan. Diagrams of this kind may be used to illustrate the way in which Ricardo's analysis of the causes that govern the Producer's Surplus from land, apply to systems of tenure other than the English. A little further change will adapt them to such customs as those found in Persia, where land itself is of small value; and "the harvest is divided into five parts, which are apportioned as follows, one part to each: 1, land; 2, water for irrigation, &c.; 3, seed; 4, labour; 5, bullocks. The landlord generally owns two, so he gets two-fifths of the harvest."

supplied by himself to suit the exigencies of each special case. This is already done in America, and in many parts of France; and some good judges think that the practice may be extended largely, and infuse new life into what a little while ago was regarded as the decaying system of Metayage[1]. If worked out thoroughly it will result in the cultivation being carried just about as far and affording the landlord the same income as he would have on the English plan for equally fertile and well situated land equipped with the same capital, and in a place in which the normal ability and enterprise of candidates for farms is the same[2].

may not be very different from those on the English plan.

It is obvious then that the advantages of the Metayer system are considerable when the holdings are very small, the tenants poor, and the landlords not averse to taking much trouble about small things: but that it is not suitable for holdings large enough to give scope to the enterprise of an able and responsible tenant. It is commonly associated with the system of peasant proprietorship; and we may consider that next.

§ 5. The position of a peasant proprietor has great attractions. He is free to do what he likes, he is not worried by the interference of a landlord, and the anxiety lest another should reap the fruits of his work and self-denial. His feeling of ownership gives him self-respect, and stability of character, and makes him provident and temperate in his habits. He is scarcely ever idle, and seldom regards his work as mere drudgery; it is all for the land that he loves so well.

The peasant proprietor has many virtues and many sources of happiness;

[1] See an article on *Rural France* in the *Edinburgh Review* for Oct. 1887; and M. Leroy-Beaulieu *Repartition des Richesses*, ch. IV., especially p. 151.

[2] Starting as in the last note, let the Circulating capital supplied by the landlord be represented by a distance OK marked off along OD. Then, if the landlord controls the amount OK freely and in his own interest, and can bargain with his tenant as to the amount of labour he applies, it can be proved geometrically that he will so adjust it as to force the tenant to cultivate the land just as intensively as he would under the English tenure; and his share will then be the same as under it. If he cannot modify the amount OK, but can still control the amount of the tenant's labour, then with certain shapes of the produce curve, the cultivation will be more intensive than it would be on the English plan; but the landlord's share will be somewhat less. This paradoxical result has some scientific interest, but little practical importance.

but he is wastefully penurious, and is an industrious but inefficient worker.

"The magic of property turns sand into gold," said Arthur Young. It undoubtedly has done so in many cases in which the proprietors have been men of exceptional energy. But such men might perhaps have done as well or better if their horizon had not been limited to the narrow hopes of a peasant proprietor. For indeed there is another side to the picture. "Land", we are told, "is the best savings-bank for the working man." Sometimes it is the second best. But the best is the energy of himself and his children; and the peasant proprietors' thoughts are so full of the one that they often starve the other. Many even of the richest of them stint the food of themselves and their families; they pride themselves on the respectability of their houses and furniture; but they live for economy in their kitchens, and are practically worse housed and far worse fed than the better class of English cottagers. And the poorest of them work hard during very long hours, but do not really get through much work, because they feed themselves worse than the poorest English labourers. They do not understand that wealth is useful only as the means, or source, of income; they sacrifice the end to the means[1].

There are some well-to-do French

And it must be recollected that the English labourers represent not the successes of the English system, but those who for many successive generations have not availed them-

[1] The term "peasant proprietor" is a very vague one: it includes many who by thrifty marriages have collected into one hand the results of several generations of hard work and patient saving; and in France some of these were able to lend freely to the Government after the great war with Germany. But the savings of the ordinary peasant are on a very small scale; and in three cases out of four his land is starved for want of capital: he may have a little money hoarded or invested, but no good grounds have been shown for believing that he often has much. Perhaps too great stress has been laid on the fact that the low price of imported food, which in England has benefitted the labourer and weighed heavily only on the landlord and to a less extent on the farmer, has on the Continent depressed the peasant proprietor, and in many cases compelled him to mortgage his land and pay an interest which absorbs the greater part of his little income. For the tide may turn. Some kinds of land in almost all districts, and all kinds of land in some districts have risen in value even during the last fifteen years; and, as the best parts of the New World get taken up, there will probably be a rise in the value of almost all land.

On the wastefulness of consuming less than the necessaries for efficiency compare Book II. Ch. IV. § 2 and Book VII. Ch. V. § 2.

selves of the opportunities by which their abler and more adventurous neighbours were rising to leading posts at home, and, what is far more important, were acquiring the fee simple of a great part of the surface of the globe. Of the causes which have contributed to make the English race the chief owners of the New World, the most important is that bold enterprise which has made a man, who is rich enough to be a peasant proprietor, generally refuse to be content with the humdrum life and the narrow income of a peasant. And among the causes which have fostered this enterprise, none is more important than the absence of the temptations to wait about for a petty inheritance, and to marry for the sake of property rather than in the free exercise of individual choice—temptations which have often dulled the energy of youth in places in which peasant properties have predominated[1].

peasants, but against them must be set the many rich men in the Old World and the New who are descended from English labourers.

§ 6. Let us then turn to that English system of tenure which, faulty and harsh as it has been in many respects, had yet so great a power of stimulating enterprise and economizing energy that it gave to England the leadership of the world in the arts of Manufacture and Colonization and, though in a less marked degree, in Agriculture. England has learnt lessons in agriculture from many countries and especially the Netherlands; but on the whole she

The English system though somewhat harsh gives great power.

[1] It is partly in consequence of the absence of these temptations that the "farmers" of America, though they are men of the working class cultivating their own land with their own hands, do not resemble "peasant proprietors." They invest their income freely and wisely in developing the energies of themselves and their children; and these energies constitute the chief part of their capital, for their land generally is as yet of but little value. Their minds are always active, and though many of them have little technical knowledge of agriculture, their acuteness and versatility enable them to find out almost unerringly the best solution of the problem immediately before them; which is generally to obtain a produce which is large in proportion to the labour spent on it, though it may often be small in proportion to the abundant land at their disposal. In some parts of America however, in which land is beginning to get a scarcity value, and in which the immediate neighbourhood of good markets is making an intensive cultivation profitable, the methods of farming and of tenure are rearranging themselves on the English model. And within the last few years there have been signs of a tendency on the part of native Americans to hand over to persons of recent European origin the farms of the West as they have already done the farms of the East, and as they did long ago the textile industries.

has taught far more than she has learnt. And there is now no country except the Netherlands, which can compare with her in the amount of produce per acre of fertile land; and no country in Europe which obtains nearly so high returns in proportion to the labour expended in getting them[1].

For it enables the landlord to supply that part of the capital for which he can be easily and effectively responsible;

The chief merit of the system is that it enables the landlord to keep in his own hands the responsibility for that part and only that part of the property which he can look after with but little trouble to himself, and little vexation to his tenant. His part consists of land, buildings and permanent improvements; and averages in England five times that which the farmer has to supply himself. The landlord is willing to supply this five-sixths of the necessary capital at a net rent which seldom gives interest at more than three per cent. on its cost; and there is no other business in which the enterprising undertaker can borrow what capital he wants at so low a rate, or can often borrow so large a part of his capital at any rate at all. The Metayer indeed may be said to borrow an even larger share, but at a much higher rate.

and it gives considerable freedom to the forces of selection,

The second merit of the English system, which partly follows from the first, is that it gives the landlord considerable freedom in the selection of an able and responsible tenant. So far as the management of land, as opposed to its ownership, goes, the accident of birth counts for less in England than in any other country of Europe. But we have already seen that even in modern England the accident of birth counts for a good deal in the access to posts of com-

[1] It would seem that England gets more produce per acre of fertile land than even the Netherlands, though there is some doubt about it. The Netherlands have led the way for England in more paths of industrial enterprise than any other country has; and this enterprise has diffused itself from their thickly scattered towns over the whole land. But there is error in the common opinion that they support as dense a population as England does, and yet export on the balance a great deal of agricultural produce. For Belgium imports a great part of her food; and even Holland imports as much food as she exports, though her non-agricultural population is small. In France, farm crops and even potatoes are on the average only about half as heavy as in England proper; and she has only about half the weight of cattle and sheep in proportion to her area. On the other hand the small cultivators of France excel in poultry and fruit and other light branches of production for which her superb climate is well suited.

mand in all kinds of business, to the learned professions and even to skilled manual trades. And it counts for somewhat more in English agriculture. For the good and bad qualities of landlords combine to prevent their selecting tenants on strictly commercial principles. They seldom go far afield for a new tenant: and until quite recently, they have seldom given facilities for an able working man, similar in character to the American farmer, to make a start on a small farm which he can cultivate with his own hands and those of his family and a few hired men[1].

though less than in other branches of industry.

§ 7. The number of people who have the opportunity of making a step forward in the arts of agriculture is very great. And since the different branches of agriculture differ from one another in general character less than do those of manufacture, it might have been expected that new ideas in it would have followed one another quickly and have been speedily diffused. But on the contrary progress has been slow.

Improvements in agriculture come slowly.

For the most enterprising agriculturists drift towards the town; those who stay behind live more or less isolated lives, and through natural selection and education their minds have always been more staid than those of townsmen, less ready to suggest or even to follow new paths. And further, though a manufacturer is nearly always safe in copying a plan that has worked well with his neighbour in the same trade, a farmer is not. For every farm has slight peculiarities of its own, so that the blind adoption of a plan that has worked well close by is likely to fail; and its failure encourages others in the belief that old and tried ways are the best[2].

partly because country life is naturally quiet,

partly because of the varieties of agricultural detail.

[1] Many landlords are not properly trained for their great positions as the ultimate supervisors of agriculture; and they know little and care little about it. Many have a kindly feeling towards those who have been their neighbours, and in some sense their associates from youth: some valuing land partly for the social or political power which it gives, are unwilling to lessen this power by the unpopular act of importing tenants from a distance, while others again are jealous of their authority in minor matters and would rather have a tenant of submissive demeanour who farmed badly than one of independent habits who farmed well.

[2] It must be recollected that even in modern England a "large" farmer employs men at most by the score, while the manufacturer may employ them by the thousand. But this may ultimately be somewhat changed by the growth of Factory Farms (Book IV. Ch. XI. § 7). The chief agricultural improvements have

These varieties make it difficult to ascertain Total as opposed to Prime cost.

This variety in agricultural detail makes the proper keeping of farming accounts very difficult. There are so many joint products and so many bye products, so many complex and shifting relations of debtor and creditor between the several crops and methods of feeding, that an ordinary farmer, even if he were as fond of accounts as he is in fact averse to them, would have great difficulty in ascertaining otherwise than by a semi-instinctive guess what is the price that will just pay him to raise a certain amount of extra produce. He may know its prime cost with fair certainty, but he seldom knows its true Total cost[1].

Difficulty of deciding what are normal prices and harvests.

The farmer's calculations are further hampered by the difficulty of deciding what is a normal harvest, and a normal level of prices. For good and bad seasons come so much in cycles that many years are required to afford a trustworthy average of them[2]: and in those many years the industrial environment is likely to have changed much; the local demand, the facilities for selling in distant markets, and for competitors from a distance to compete in local markets may all have changed.

been made by landlords who have themselves been townsmen or at least have associated a good deal with townsmen, and by manufacturers in trades subsidiary to agriculture. Mr R. Prothero (*English Farming*, Ch. VI.) gives some instances of prolonged resistance to changes, and adds that an act had to be passed in England as late as 1634 "agaynst plowynge by the taile."

[1] The difficulty is even greater in small holdings. For the capitalist farmer does at all events naturally measure the Prime cost in terms of money. But the cultivator working with his own hands often puts into his land as much work as he feels able to do without estimating carefully its money value in relation to its product.

It has been already noticed (Book VII. Ch. VIII. § 6) that peasant proprietors, like other heads of many small businesses, will often work harder than those whom they hire and for less reward. But they differ from the small masters in manufacture in this, that they often do not hire extra labour even when it would pay them well to do so. If all that they and their family can do for their land is less than enough for it, it is generally under-cultivated: if more, it is often cultivated beyond the remunerative limit. It is a common rule that those who give the time which is free from their main occupation to some other industry, often regard their earnings in this last, however low, as an extra gain, and sometimes even work below what would be a starvation wage to those who depend on that industry for support. This is especially true when the side-industry is that of cultivating, partly for the pleasure of doing it, a small plot of land and with imperfect appliances.

[2] Compare Tooke, *History of Prices*, Vol. VI. App. III.

nother difficulty which we must lies in the ambiguity which lity among farmers in different duce into the ending words of the ucer's Surplus, or English rent, of a hich its produce yields over its ex-, including normal profits to the farmer; that that farmer's ability and enterprise normal for farms of that class *in that place*. is to decide whether these last words are to be broadly or narrowly.

Difficulty arising from local variations in the standard of normal farming skill and enterprise.

clear that if a farmer falls below the standard ity of his own district, if he is a hard master, scarcely ever exerts himself except when he is planning executing a hard bargain, if his gross produce is small and his net produce even smaller in proportion; in such a case the landlord acts in the interest of all when he hands over the farm to a more competent tenant, who will pay better wages, obtain a much higher net produce and pay a somewhat higher rent. On the other hand when the local standard of normal ability and enterprise is low, it is not clearly right from an ethical point of view, nor is it clearly in the business interests of the landlord in the long run, that he should endeavour to take to himself a greater rent than can be paid by a farmer who reaches that standard; even though it could be obtained by importing a farmer from another district in which the standard is higher[1].

Ethical and economic elements are here closely intermingled.

This is a type of a large class of ethico-economic problems, which occur in every branch of industry, but are

[1] Difficulties of this kind are practically solved by compromises which experience has justified, and which are in accordance with the scientific interpretation of the term "normal." If a local tenant showed extraordinary ability, the landlord would be thought grasping who by threatening to import a stranger tried to extort a higher rent than the normal local farmer could make the land pay. On the other hand a farm being once vacant, the landlord would be thought to act reasonably if he imported a stranger who would set a good model to the district, and who shared about equally with the landlord the extra net surplus due to his ability and skill, which, though not strictly speaking exceptional, were yet above the local standard. Compare the action of Settlement Officers in India with regard to equally good land cultivated by energetic and unenergetic races. (See note on p. 682.)

specially prominent in agriculture. And since in it competition must always be relatively feeble and clumsy; and the arts of production must move slowly, we should cherish, as a set off against these disadvantages, the special opportunities which it has for fostering neighbourly relations.

The tenant's freedom to make and reap the fruits of improvements.

§ 9. Closely related to this question is one as to the freedom the tenant should have to develop the natural capabilities of his land at his own risk, with the understanding that if he is successful he is to retain something more than mere normal profits on his enterprise. So far as minor improvements go, this difficulty is in a great measure met by long leases. These have done much for Scotland: but they have disadvantages of their own[1].

Custom, and, within recent years, legislation, have given the English tenant claims for compensation for improvements made by him which do not alter the character of his holding, and the fruits of which come in quickly. But he cannot claim the compensation till he quits his tenancy: and it is theoretically possible for a hard landlord to exact more than a fair rent from an improving farmer who has an affection for his ancestral home. Such cases are however rare[2].

[1] The chief of these is that a great change in the Industrial Environment in its broader sense (Conjunctur), if favourable to the land may enrich the leaseholder without any merit of his own; and if unfavourable may break him in spite of his best efforts. The opening up of the wheat fields of the North-West of America struck some Scotch farmers with long leases almost as heavily as it did many peasant proprietors in the West of Europe. As Sir James Caird points out (*Landed Interest*, Ch. XI.) the Earl of Leicester's plan of allowing the tenant proper freedom of cropping, till the last four years of his lease, would remove many other evils that have attached to, but are not inherent in the system.

[2] The Agricultural Holdings Act of 1881 enforces customs which Mr Pusey's committee eulogized, but did not propose to enforce. Many improvements are made partly at the expense of the landlord and partly at that of the tenant, the former supplying the materials, and the latter the labour. In other cases it is best that the landlord should be the real undertaker of the improvements, bearing the whole expense and risk, and realizing the whole gain. Partly for the sake of simplicity in working, the law provides that compensation for permanent improvements can be claimed only if they have been made with the consent of the landlord. But Prof. Nicholson argues with great force (*Tenant's gain not landlord's loss*, Ch. X.) that the tenant should be allowed to claim for all improvements necessary for good husbandry, after giving the landlord notice and time to make them himself, provided only they do not alter the character of the holding.

§ 10. Next we come to the question how far landlords will in their own interest adjust the size of holdings to the real needs of the people. Small holdings often require more expensive buildings, roads and fences, and involve greater trouble and incidental expenses of management to the landlord in proportion to their acreage than do large holdings; and, while a large farmer, who has some rich land, can turn poor soils to good account, small holdings will not flourish generally except on good soil[1]. Their gross rental per acre must therefore always be at a higher rate than that of large farms. But it is contended that, especially when land is heavily burdened by settlements, landlords are unwilling to incur the expense of subdividing farms, unless they see their way to rents for small holdings that will give them, in addition to high profits on their outlay, a heavy insurance fund against the chance of having to throw the holdings together again; and that, in many parts of the country, the rental for small holdings and especially those of only a few acres is extravagantly high. Sometimes the prejudices of the landlord and his desire of undisputed authority make him positively refuse to sell or let land to persons who are not in harmony with him on social, political or religious questions; but it seems certain that evils of this kind have always been confined to a few districts, and that they are rapidly diminishing.

The interests of landlords and of the public as regards small holdings.

Their gross rent must always be high relatively to their acreage.

But it is sometimes at a scarcity value;

But they rightly attract much attention. For there is a public need for small holdings, as well as large, in every district. They increase the number of people who are working in the open air with their heads and their hands: and they give to the agricultural labourer a stepping-stone upwards, prevent him from being compelled to leave agriculture to find some scope for his ambition, and they check the great evil of the continued flow of the ablest and bravest farm lads to the towns.

and that is contrary to the public interest.

[1] The interpretation of this term varies with local conditions and individual wants. On permanent pasture land near a town or an industrial district the advantages of small holdings are perhaps at their maximum, and the disadvantages at their minimum. If the land is arable, it must not be light, but strong, and the richer the better; and this is especially the case with holdings so small as to make much use of the spade. If the land is hilly and broken the small cultivator loses but little from his want of command of machinery.

Allotments.

Moreover very small holdings, which can be worked by people who have some other occupation, and also allotments and large gardens, render great services to the State, as well as to those who cultivate them. They break the monotony of existence, they give a healthy change from indoor life, they offer scope for variety of character and for the play of fancy and imagination in the arrangement of individual life; they afford a counter attraction to the grosser and baser pleasures; they often enable a family to hold together that would otherwise have to separate; under favourable conditions they improve considerably the material condition of the worker; and they diminish the fretting as well as the positive loss caused by the inevitable interruptions of their ordinary work.

There should be no artificial hindrances to peasant properties.

And lastly though peasant proprietorship, as a system, is unsuited to the economic conditions of England, to her soil, her climate and the temper of her people, yet there are a few peasant proprietors in England, who are perfectly happy in this condition; and there are a few others who would buy small plots of land and would live happily on them, if they could get just what they wanted where they wanted it. Their temper is such that they do not mind working hard and living sparely, provided they need call no one master; they love quiet and dislike excitement; and they have a great capacity for growing fond of land. Reasonable opportunity should be given to such people to invest their savings in small plots of land, on which they may raise suitable crops with their own hands; and at the very least the present grievous legal charges on the transfer of small plots should be diminished[1].

Co-operation has great opportunities but also great difficulties in agriculture.

Co-operation would seem likely to flourish in agriculture and to combine the economies of production on a large scale with many of the joys and the social gains of small properties. It has not so far succeeded well, partly because, while co-operation requires habits of mutual trust and confidence, the bravest and the boldest, and therefore the most trustful, of the countrymen have always moved to the towns.

[1] Many villa gardens are entered in our Agricultural Returns as small holdings. But even allowing for that fact the following table shows that the

and agriculturists are a suspicious race; partly as a result of a series of unlucky accidents which it may be hoped will not recur in future experiments.

As co-operation might combine more of the advantages of all systems of tenure, so the cottier system of Ireland often combined the disadvantages of all; but its worst evils and their causes are rapidly disappearing, and the economic elements of the problem are just now overshadowed by the political. We must therefore pass it by[1].

§ 11. Again, private interests collide with those of the public in the matter of open and free spaces in towns. Conflict between public and

supply of such holdings is not very small, though indeed it is unevenly distributed.

Classification of Holdings.	Percentage of Area of England in each Class.	No. of Holdings of each Class.			
		England.	Wales.	Scotland.	Ireland.
Of ¼ acre but under 1	0·04	21,069	1,083	1,360	49,744
Of 1 not exceeding 5	1·15	103,229	11,044	21,463	61,876
Above 5 " " 20	4·89	109,285	17,389	22,132	} 365,113
" 20 " " 50	8·60	61,146	12,326	10,677	
" 50 " " 100	13·19	44,893	10,044	9,778	56,172
" 100 " " 300	41·32	59,180	7,844	12,549	} 30,860
" 300 " " 500	17·39	11,452	389	2,034	
" 500 " " 1,000	10·83	4,131	63	632	} 1,584
" 1,000	2·95	565	8	90	
Total		414,950	60,190	80,715	565,313

For further statistical information see an excellent paper by Major Craigie *On the Size and Distribution of Agricultural Holdings in England and Abroad* in the *Statistical Journal* for March 1887.

[1] The Ricardian theory of rent ought not to bear the greater part of the blame that has been commonly thrown on it, for those mistakes which English legislators made during the first half of this century in trying to force the English system of land tenure on India and Ireland. The theory concerns itself with the causes that determine the amount of the Producer's surplus from land at any time; and no great harm was done when this surplus was regarded as the landlord's share, in a treatise written for the use of Englishmen in England. It was an error in jurisprudence and not in economics that caused our legislators to offer to the Bengal tax collector and Irish landlord facilities for taking to themselves the whole property of a cultivating firm, which consisted of tenant and landlord in the case of Ireland, and in the case of Bengal, of the Government and tenants of various grades; for the tax collector was in most cases not a true member of the firm, but only one of its servants. But wiser and juster notions are prevailing now in the Government of India as well as of Ireland.

private interests in the matter of building on open spaces,

Wakefield and the American economists have taught us how a sparsely inhabited new district is enriched by the advent of every new settler. The converse truth is that a closely peopled district is impoverished by every one who adds a new building or raises an old one higher. The want of air and light, of peaceful repose out of doors for all ages and of healthy play for children, exhausts the energies of the best blood of England which is constantly flowing towards our large towns[1]. By allowing vacant spaces to be built on recklessly we are committing a great blunder from a business point of view, since for the sake of a little material wealth we are wasting those energies which are the factors of production of all wealth; and we are sacrificing those ends towards which material wealth is only a means. It is a difficult question to decide how far the expense of clearing open spaces in land already built on, should fall on the neighbouring owners. But it seems right that for the future every new building erected, save in the open country, should be required to contribute in money or in kind towards the expenses of open places in its neighbourhood.

and in other matters.

But we are now trenching on those general relations between collective and private interests, which we shall have to study carefully at a later stage. We shall then have to face several ethico-economic problems as to the limits of perpetual private rights in land "from the centre of the earth to the sky above it"; we shall have to enter on such questions as whether the interests of the mine-owner make him sufficiently careful of Nature's stored-up treasures, especially when they occur in poor seams; and again whether there is a balance of public advantage in allowing the shopkeeper in a town who has given a special value to his premises by the ability with which he has done business in them, a similar claim to compensation for disturbance to that which has been recognized in the case of the improving agricultural tenant.

The capital value of land.

§ 12. In conclusion it may be noticed that the capitalized value of land is the actuarial "discounted" value of all the net incomes which it is likely to afford, allowance being

[1] Compare Book IV. Ch. V. § 6.

made on the one hand for all incidental expenses, including those of collecting the rents, and on the other for its mineral wealth, its capabilities of development for any kind of business, and its advantages material, social and æsthetic for the purposes of residence. The money equivalent of those direct gratifications which the ownership of land affords, does not appear in the returns of the money income derived from it, but does enter into its capital money value[1].

[1] The value of land is commonly expressed as a certain number of times the current money rental, or in other words a certain "number of years' purchase" of that rental: and other things being equal it will be the higher, the more important these direct gratifications are, as well as the greater the chance that they and the money income afforded by the land will rise. The number of years' purchase would be increased also by an expected fall either in the future normal rate of interest or in the purchasing power of money.

It may be mentioned that the discounted value of a very distant rise in the value of land is much less than is commonly supposed. For instance if we take interest only at five per cent. (and of course a much higher rate prevailed during the Middle Ages), £1 invested at compound interest would amount to about £130 in 100 years, £17,000 in 200 years and £36,000,000,000 in 500 years: and therefore an expenditure by the State of £1 in securing to itself the reversion of a rise in the value of land which came into operation now for the first time would have been a bad investment, unless the value of that rise now exceeded £130, if the payment was made 100 years ago; if 200 years ago the gain ought now to amount to £17,000, if 500 years ago to £37,000,000,000.

CHAPTER XII.

GENERAL VIEW OF THE THEORY OF VALUE.

§ 1. We may now collect together the chief threads of our long argument; and may begin on the more abstract side with an endeavour to bring into clear relief the fundamental scientific unity which underlies the whole theory of normal value.

Causes that determine price in markets too short to permit the direct influence of cost of production.

We have seen that many of the apparent differences between the modes of action of the causes that determine value depend on differences in the periods of time required for those forces to work out their full, or normal, or ultimate effects; and that they are not really differences in kind, but only differences in degree, passing into one another by continuous gradations. Thus the equilibrium price in a local fish-market is that at which there will be a demand for last night's catch; it is not appreciably affected by future supplies either from to-morrow's catch, or from other fishing ports. In a market for a durable commodity, such as cotton or wheat, market prices are much influenced by estimates of "futures," that is of stocks expected shortly to arrive, and even crops not yet reaped. But buyers cannot afford to wait for crops not yet sown; and therefore cost of production has no *direct* influence on the market.

That influence beginning to operate.

But it has a direct influence at the next stage when we come to the market price of such a thing as cloth of a particular pattern. For if its price rises even a little relatively to other kinds made of similar material and in the same factories, its supply will be much increased quickly; and

therefore its price is directly governed by current (money) cost of production. We say "current" cost because estimates of it take for granted the current price of raw material, the current wages of textile operatives, and so on.

Thus the transition from oscillations of price in a fish market to those in a cloth market is similar to the transition from weekly oscillations of price in the latter about its short-period position of equilibrium. And these again resemble the oscillations of this equilibrium position itself about a true (or long-period) normal level. This true normal level must be estimated with regard to periods long enough to allow a change in the habits of dress of the people to work out its chief effects in causing Australian sheep farmers to extend their sheep runs, in causing English capitalists to build new cloth factories, and new factories for making cloth-making machinery, and in causing labour of all grades, from that of the highest business management down to the lowest class required in the production of cloth, to drift towards that trade, and to bring up their children to it.

Its scope extending further

And these oscillations again resemble those secular oscillations of wages about the customary standard of living, which there is reason for thinking have frequently occurred in the histories of stationary civilizations[1].

and still further.

§ 2. To look at the same set of facts from another point of view:—neither the price at which a thing can be sold, nor the income which can be earned by using it in the production of other things, is directly affected by its own cost of production. For, as Mill said, "Cost of production could have no effect on value, if it could have none on supply."

Another grouping of the same facts.

Thus the price which a sack of wheat already in Liverpool fetches there, is not determined directly by its cost of production, but tends to that equilibrium level at which the amount demanded will be equal to the sum of existing stocks together with those additional stocks which at that price will be brought from elsewhere. The actual price of a building is determined, not by its cost of production, but by the relations between demand on the one side, and on the

[1] In connection with this section compare Book v. Ch. II. III. IV. and IX., and especially Ch. IV. § 6: also Book VII. Ch. II. § 1.

other the existing stock of such buildings together with the new supplies that current expectations of price are likely to bring shortly into existence. The demand price for it is the capitalized value of all the net incomes that are expected to accrue from its possession.

The term Quasi-rent is a symbol of the continuous gradation from the income afforded by the use of perishable implements to the rent of the "inherent" properties of land.

We have described the income derived from a building or from invested capital in any form, whether Material or Personal, as a Producer's Surplus or Quasi-rent: because we have seen that there is a continuous gradation from the income afforded by existing looms, and other machinery, through that afforded by factories and by permanent improvements in land, to the Rent yielded by the "inherent" and "indestructible" properties of the land. We have seen that this Rent itself cannot be distinguished from profits in the case of a new country, where the title-deeds of rich land are waiting to be earned by any one who chooses to settle on it and bring it under cultivation. We have seen that the incomes derived from appliances for production of any kind, is watched by those who are doubting whether to provide similar appliances; and they enter among the causes extending over a long period of time, by which the true normal value of the commodity made by these appliances is determined: for a rise or fall of these incomes above or below the rewards that can be got by investing capital and labour in other ways, increases or diminishes the supply of these appliances and therefore of the goods produced by them: and for the purposes of the theory of normal value they are therefore to be regarded as Profits, entering into the money cost of production of the commodities in question.

But so far as current variations in the supply—and therefore the price—of the commodity are concerned, variations in the income derived from these appliances exercise no appreciable effect: and on the other hand variations in the price of the commodity do determine the Surplus, which the Producers in possession of these appliances receive over and above the fresh outlay of capital and effort required for producing the commodities by the aid of these appliances. And even when we are considering variations in the price of

a commodity that range over too long a time to be called "current variations" we find that the shorter that period is, and the slower the process of production of the requisite appliances, the less influence will variations in that income exert on the supply of that commodity, and therefore on its price: and the more closely will the income approach to the nature of a Rent which is determined by that price, and does not take a direct part in determining it. This argument applies equally to Material appliances for production, such as factories and looms; and to Immaterial capital such as business organizations, business connections, and business skill and ability; and if we interpret the term Income broadly, the argument applies also to the benefits derived from the direct usance of wealth whether Material or Immaterial[1].

The causes that determine the normal supply prices of Material and Personal capital are very similar in general character,

§ 3. We have seen that the chief motives which induce the saving of capital are supplied by the family affections; and that the question whether a man accumulates Material capital *for* his son or Personal capital *in* that son's education, is from the present point of view a mere matter of detail. There is a continuous transition from the father who works and waits in order that he may bequeath to his son a rich and firmly established manufacturing or trading business, to one who works and waits in order to support his son while he is slowly acquiring a thorough medical education, and ultimately to buy for him a lucrative practice, and again to one who works and waits in order that his son may stay long

[1] The main argument of this section is given in Book VI. Ch. II. and III. The close correspondence of the causes that determine the investment of capital and effort in business plant and in business organization was brought out in Book VI. Ch. V.; and in the following Chapter a similar correspondence was found between Supplementary charges which have to be added to the Prime cost of a commodity on account of material plant on the one hand and business organization and connection on the other. In Book IV. Ch. III. and Book VI. Ch. II. attention was called to the fact that the income derived by taking minerals from nature's storehouses is not a rent: and that therefore the doctrine that "rent does not enter into cost of production" does not apply to mining royalties. But it does apply to the income derived from building ground, and even from fisheries, hunting grounds and woods, provided man does not take away their produce faster than nature replaces it. On the relations between Material and Immaterial wealth, capital and income, and between money income and that real income which includes the usance of wealth, see Book II. Ch. II. V. and VI.

at school, and afterwards work for some time almost without pay while learning a skilled trade, instead of being forced to support himself early in an unskilled occupation, such as that of an errand-boy; for that leads the way to no future advance, and therefore offers comparatively high wages to young lads[1].

in spite of important differences.

It is indeed true that the only persons, who, as society is now constituted, are very likely to invest much in developing the Personal capital of a youth's abilities are his parents: and that many first-rate abilities go for ever uncultivated because no one who can develop them, has had any special interest in doing so. This fact is very important practically, for its effects are cumulative. But it does not give rise to a fundamental difference between material and human agents of production: for it is analogous to the fact that much good land is poorly cultivated because those who would cultivate it well have not access to it; since it is not possible for a comparatively small number of undertakers of great ability to exercise the same controlling influence in agriculture that they can in manufacture or transport[2].

Again, since human beings grow up slowly and are slowly worn out, and parents in choosing an occupation for their children must as a rule look forward a whole generation, changes in demand take a longer time to work out their full effects on supply in the case of human agents than of most kinds of material appliances for production; and a specially "long" period is required in the case of labour to give full play to the economic forces which tend to bring about a normal adjustment between demand and supply[3].

[1] Comp. Book IV. Ch. V. VI. VII. and XII.; and Book VI. Ch. V. VI. and IX. The analysis in Book VII. Ch. IV. of the various incidental advantages and disadvantages of a trade, which enter into its Real wages, corresponds closely to that in Book VII. Ch. XI. of the benefits derived from the ownership of land in addition to the money income that it can be made to yield.

[2] Compare Book IV. Ch. VI. and Book VII. Ch. V. § 2 with Book IV. Ch. XI. § 4 and Book VII. Ch. XI. § 7.

[3] To state nearly the same thing in another way, when we are considering periods of moderate length—say of a few years—the average earnings of skill or ability of any kind, have to be regarded more as a Quasi-rent determined by the demand for their services, and less as normal profits on the labour and waiting needed for the acquirement of that skill or ability, than is the case with regard to such material appliances for production as are quickly made and quickly worn out (Book VII. Ch. V. §§ 1—5). But, on the other hand, a great part of the earnings

§ 4. That part of a man's income which he owes to the possession of extraordinary natural abilities may be regarded by him as analogous to the rent of other free gifts of nature, such as the "inherent" properties of land. But in reference to normal prices, it is to be classed rather with the profits derived by free settlers from the cultivation of new land, or again with the find of the pearl fisher. The plot of one settler turns out better and that of another worse than was expected; the good find of one dive of the pearl fisher compensates for many others that are fruitless: and the high income which one barrister, or engineer, or trader earns by his natural genius has to be counted with the comparative failures of many others; they perhaps appeared of no less promise when young, and they received as costly an education and start in life, but their services to production were less, while his were more, than in proportion to that cost.

The income derived from rare natural abilities is a rent from the point of view of the individual, but not for the purposes of the theory of normal value.

The ablest business men are generally those who get the highest profits; they do their work most cheaply, and it would be as wasteful if society were to give their work to inferior people who would undertake to do it more cheaply, as it would be to give a valuable diamond to be cut by a low waged but unskilled cutter. And just as the wages of skilled cutters enter into the normal supply price of cut diamonds, so the Earnings of Management of able business men enter into the normal supply price of the goods which they provide[1].

§ 5. The demand for commodities for immediate consumption (goods of the first Order) presents few theoretical difficulties; though there is no more pressing work for the coming generation of economists than to obtain definite laws of consumption resting on a statistical basis[2]. We may therefore pass to the demand for Factors of production, under which head are included raw materials, and the services of human and material agents and of capital in the Immaterial

The Demand for goods of the first Order, and of higher Orders.

of a worker are the payment required to induce him to undergo a certain strain or fatigue. And this may be regarded as the Prime cost of his labour, while the remainder is the Supplementary cost required to make up in the long run its Total supply price.

[1] Compare Book VI. Ch. III. §§ 2, 3; Book VII. Ch. VI. § 8, and Ch. IX. § 9.

[2] See Book III. especially Ch. III.; also Book V. Ch. VIII. § 8.

form of business organization (or in other words, all goods of the second and higher Orders). The normal demand price for any such factor is equal to the Net value of its services; that is, to the value of the things produced by it in conjunction with other factors after deducting their supply prices[1]. The demand for it will be increased by an increase in the demand for those things for which it is used, and by an increase in the facilities of supply of any thing which is used as a joint factor of production with it in the production of any commodity: and this increased demand will raise its normal price, if it conforms to the Law of Diminishing Return, but will lower its normal price if it conforms to the Law of Increasing Return.

The Law of Distribution of a thing in different uses, and the Law of Substitution.

In equilibrium it will of course be distributed among its several uses, so that equal rewards are earned by its marginal services in each case. And in the struggle between it and rival factors of production, which could render services equivalent to its own, it will hold its ground permanently only when its services are at least as efficient in proportion to their cost as those of any rival that could be substituted for it.

Application to the uses of capital as Auxiliary and Remuneratory.

§ 6. We have watched the application of Von Thünen's great Law of Substitution to the part played by demand in determining the relative proportions of Auxiliary and Remuneratory or Wage-capital. The marginal efficiency of human agents of production supported by Wage-capital on the one hand, and that of material agents on the other, are weighed against one another and compared with their marginal costs; and each tends to be applied as far as it is more efficient than the other in proportion to its cost[2]. A

[1] In the more technical but more exact language of Book v. Ch. vi. we may say that the demand schedule for any factor of production is *compounded* of its derived demand schedules for all its several uses in producing various commodities; each such schedule being derived by subtracting from the demand price of each separate amount of the commodity the sum of the supply prices for corresponding amounts of the other factors. See also Book VII. Ch. III. § 4.

[2] The growth of Wage-capital and the rise of wages do not then stand to one another in the simple relation of cause and effect, as was stated or implied in the cruder forms of the Wage-Fund Theory; but all the chief elements of the problem act and react on one another and mutually determine one another. That is to say, the supply of capital and the supply of labour; the price of the use of capital or

chief function of business Undertakers is to facilitate the free action of this great Law of Substitution. Generally to the public benefit, but sometimes in opposition to it, they are constantly comparing the services of machinery, and of labour, and again of unskilled and skilled labour, and of extra foremen and managers; they are constantly devising and experimenting with new arrangements which involve the use of different factors of production, and selecting those most profitable to themselves[1].

Business Undertakers are the agents by whose means the Law of Substitution weighs against one another the services of the different industrial classes.

The efficiency as compared with the cost of almost every class of labour, is thus continually being weighed in the balance in one or more branches of production against some other classes of labour: and each of these in its turn against others. This competition is chiefly "vertical": it is a struggle for the field of employment between groups of labour belonging to different grades, but engaged in the same branch of production, and inclosed, as it were, between the same vertical walls. Meanwhile "horizontal" competition is always at work, and by simpler methods. For, firstly, there is great freedom of movement of adults from one business to another within each trade; and secondly, parents can generally introduce their children into almost any other trade of the same grade with their own in their neighbourhood. By means of this combined vertical and horizontal competition there is an effective and closely adjusted balance of payments to services as between labour in different grades; in spite of the fact that the labour in any one grade is mostly recruited even now from the children of those in the same grade[2].

The action of this Law though chiefly roundabout is very thorough

The working of the Law of Substitution is thus chiefly indirect. When two tanks containing fluid are joined by a pipe, the fluid, even though it be rather viscous, which is near the pipe in the tank with the higher level will flow into the

the rate of interest, and the price of the use of labour or the rate of earnings; the marginal efficiency of auxiliary capital, and that of the labour supported by Wage-capital; and lastly the relative amounts of Auxiliary and of Wage-capital—all those elements mutually determine one another.

[1] Comp. Book v. Ch. III. § 3; Book VI. Ch. v. § 3, and Book VII. Ch. I. § 3, and Ch. VIII. § 2.

[2] Compare Book IV. Ch. VI. §§ 7, 8; Book VII. Ch. III. § 4.

in the long run.

other; and thus the general levels of the tanks will tend to be brought together, though no fluid may flow from the further end of the one to the further end of the other; and if several tanks are connected by pipes, the fluid in all will tend to the same level, though some tanks have no direct connection with others. And similarly the Law of Substitution is constantly tending by indirect routes to apportion earnings to efficiency between trades and even between grades which are not directly in contact with one another, and which appear at first sight to have no way of competing with one another[1].

The position of business undertakers

§ 7. There is no breach of continuity as we ascend from the unskilled labourer to the skilled, thence to the foreman, to the head of a department, to the general manager of a large business paid partly by a share of the profits, to the junior partner, and lastly to the head partner of a large private business: and in a joint stock company there is even somewhat of an anti-climax when we pass from the Directors to the ordinary shareholders, who undertake the chief ultimate risks of the business. Nevertheless business undertakers are to a certain extent a class apart.

makes the action of the Law of Substitution with regard to them indiscriminating and wasteful;

For while it is through their agency that the Law of Substitution chiefly works in balancing one factor of production against another, there is no one to act as its agent with regard to them. So it works blindly, or rather wastefully; it forces many to succumb who might have done excellent work if they had been favoured at first: and, in conjunction with the Law of Increasing Return, it strengthens those who are strong, and causes competition itself to weed out the weaker competitors, and to hand over their businesses to those who have already obtained a partial monopoly. Striking instances of this have been recently shown by American Trusts; but on the other hand there is also a constant increase in the forces which tend to break up old monopolies, to offer to men who have but little capital

[1] Some of the most interesting instances of this indirect competition are between different trades in distant places, and especially in different countries. We shall have to discuss them carefully later on when we come to discuss the combined problems of International Trade and of Local Variations of Wages and Prices.

of their own, openings both for starting new businesses, and for rising into posts of command in large public and private concerns, and thus in one way or another to put business ability in command of the capital required to give it scope. On the whole the work of business management is done cheaply—not indeed as cheaply as it may be in the future when society exerts itself more to develop the latent faculties of those who are born in a humble station of life, to diminish the secrecy of business, and in other ways to hold in check the more wasteful forms of speculation and of competition for custom: but yet so cheaply that it contributes to production more than the equivalent of its pay. For the business undertaker, like the skilled artisan, renders services which society needs, and which it would probably have to get done at a higher cost if he were not there to do them[1].

their work may be done more cheaply hereafter, but it is worth to society even now more than it costs.

The similarity between the causes that determine the normal rewards of ordinary ability on the one hand, and of business power in command of capital on the other, does not extend to the fluctuations of their current earnings. For the undertaker stands as a buffer between the buyer of goods and all the various classes of labour by which they are made. He receives the whole price of the one and pays the whole price of the others. The fluctuations of his profits go with fluctuations of the prices of the things he sells, and are more extensive: while those of the wages of his employés come later and are less extensive. The Quasi-rent of his capital and ability is sometimes large, but sometimes also a negative quantity: whereas that of the ability of his employés is never very large and is never a negative quantity[2].

Contrasts between fluctuations of current profits and wages.

§ 8. The full discussion of market or current wages and profits, belongs to a later stage. But there is one point with

We proceed to consider

[1] We have postponed a discussion of the contention of the socialists that it would be better for the State to take the work into its own hands and hire business managers to conduct it: and we have postponed also a study of those forms of speculation and commercial competition which are not beneficial to society, and perhaps are even harmful. Compare Book IV. Ch. XII. § 2, Book VII. Ch. VIII. § 5 and Ch. IX. § 8.

[2] Comp. Book V. Ch. VI. § 2 and Book VII. Ch. IX. §§ 7—9. Of course the wage-receiver is likely to suffer much when out of work; but that is because he has no reserve, not because he is a wage-receiver.

the Quasi-rent of a business in divided ownership between employers and employed.

regard to them that should be noticed here. It relates to the solidarity of the different industrial classes engaged in the same trade. In some cases and for some purposes nearly the whole income of a business may be regarded as a Quasi-rent divisible among the different persons in the business by bargaining, supplemented by custom and by notions of fairness: and, when the several groups are combined among themselves, the same may be said of the aggregate income of all the businesses in a trade. These results are brought about by causes, which though different, bear some analogy to those that, as we saw in the last chapter, have put the Producer's Surplus from the land, in early forms of civilization, into the hands not of single individuals, but of cultivating firms.

Even as seen by the undertaker it includes several minor Quasi-rents.

The Quasi-rent of a successful business, looked at from the point of view of the undertaker himself, is the aggregate of the Quasi-rents firstly of his own ability, secondly, of his plant and other material capital, and thirdly of his business organization and connection. But really it is more than the sum of these. For his efficiency depends partly on his being in that particular business; and if he were to sell it at a fair price, and then engage himself in another business, his income would probably be much diminished[1].

But there is often a

The point of view of the undertaker however does not include the whole Quasi-rent of the business: for there is

[1] We have not had occasion to discuss the general problem of which this is a particular case; but it has much scientific interest, and some study of it here may throw light on the important special case in the text. At starting, there may appear to be some contradiction in the statement that a thing is yielding at the same time two rents: for its rent is in some sense a residual income after deducting the expenses of working it: and it may seem that there cannot be two residues. But really we often find a true Producers' Surplus or rent, which itself includes two or more minor rents. For instance, the rent of a flour-mill worked by water includes the rent of the site on which it is built, and the rent of the water power which it uses. Suppose that it is contemplated to build a mill in a place where there is a limited water power, which could be applied equally well on any one of many sites; then the rent of the water power together with the site selected for it is the sum of two rents; which are respectively the equivalent of the differential advantages which possession of the site gives for production of any kind, and which the ownership of the water power gives for working a mill on any of the sites. And these two rents, whether they happen to be owned by the same person or not, can be clearly distinguished, and separately estimated both in theory and in practice. But this cannot be done if there are no other sites

part of it which attaches to the employés, and would be lost if they sought other employment.

another part which attaches to his employés. The head clerk in a business for instance may have an acquaintance with men and things, the use of which he could sell at a high price to rival firms. But on the other hand it may be of a kind to be of no value save to the business in which he already is; and then his departure would perhaps injure it by several times the value of his salary, while probably he could not get half that salary elsewhere. And when a firm has a speciality of its own, many of its ordinary workmen would lose a great part of their wages by going away, and at the same time injure the firm seriously. The chief clerk may be taken into partnership, and the whole of the employés may be paid partly by a share in the profits of the concern; but whether this is done or not, their earnings are determined not directly by competition, and the direct action of the Law of Substitution, but by a bargain between them and their employers, the terms of which are theoretically arbitrary. In practice however they will probably be governed by a desire to "do what is right," that is to agree on payments that represent the normal earnings of

on which a mill can be built: and in that case, should the water power and the site belong to different persons, there is nothing but "higgling and bargaining" to settle how much of the excess of the value of the two together over that which the site has for other purposes, shall go to the owner of the latter. And even if there were other sites at which the water power could be applied, but not with equal efficiency, there would still be no means of deciding how the owners of the site and the water power should share the excess of the Producer's Surplus which they got by acting together, over the sum of that which the site would yield for some other purpose, and of that which the water power would yield if applied elsewhere.

The mill would probably not be put up till an agreement had been made for the supply of water power for a term of years: but at the end of that term similar difficulties would arise as to the division of the aggregate Producer's Surplus afforded by the water power and the site with the mill on it. Difficulties of this kind are continually arising with regard to attempts by partial monopolists, such as railway, gas, water and electrical companies, to raise their charges on the consumer who has adapted his business arrangements to make use of their services, and perhaps laid down at his own expense a costly plant for the purpose. For instance at Pittsburgh when manufacturers had just put up furnaces to be worked by natural gas instead of coal, the price of the gas was suddenly doubled. (See Mr C. W. Baker's *Monopolies and the People*, Ch. III.) The whole history of mines is full of difficulties of this kind with neighbouring landowners (as to rights of way, &c.), neighbouring cottage, railway and dock owners. We shall have to examine these difficulties when we come to the question of Combinations, Monopolies and Collective in relation to Private Interests. See also Book v. Ch. VIII. especially § 6.

such ability, industry and special training as the employés severally possess, with something added if the fortunes of the firm are good, and something subtracted if they are bad.

When there would be no such loss, the Quasi-rent of the employés' skill depends on the prosperity of the trade in general.

It is important to see how the position of such employés differs from that of others, whose services would be of almost equal value to any business in a large trade. The income of one of these in any week consists, as we have seen, partly of a recompense for the fatigue incurred by the work of that week, and partly of a Quasi-rent of his specialized skill and ability: and, assuming competition to be perfectly efficient, this Quasi-rent is determined by the price which either his present employers, or any other, would be willing to pay for his services in the state in which the market for their wares is during that week. The prices that have to be paid for given work of a given kind being thus determined by the general conditions of the trade, these prices enter into the direct outgoings which have to be deducted from its gross earnings in order to ascertain the Quasi-rent of this particular firm at the time. But in the rise or fall of that Quasi-rent the employés would have no share[1].

When employers and employed are in combination, the division of the whole income of the trade is in some measure arbitrary.

§ 9. If however the employers in any trade act together and so do the employed, the solution of the problem of wages becomes again arbitrary, nearly in the same way as in the last paragraph but one. The trade as a whole may be regarded as receiving a Quasi-rent consisting of the excess of the aggregate price which it can get for such wares as it produces over what it has to pay to other trades for the things it buys from them[2]; and there is nothing but bargaining to decide the exact shares in which this should go to employers and employed. No lowering of wages will be permanently in the interest of employers, which is unnecessary and drives

[1] As a matter of fact however competition is not thus perfectly efficient. Even where the same price is paid all over the market for the same work with the same machinery, the prosperity of a firm increases, for almost every one of its employés, the chance of advancement, and also of continuous employment when trade is slack, and much-coveted overtime when trade is good. There is *de facto* some sort of profit-and-loss sharing between almost every business and its employés.

[2] Regarding the whole trade as a "nation," this becomes the National Dividend; and this analogy is of service when the pure theory of international commerce is applied to the relations between different trades in the same country.

many skilled workers to other markets, or even to other industries in which they abandon the Quasi-rent of their special skill; and wages must be high enough in an average year to attract young people to the trade. This sets lower limits to wages, and upper limits are set by corresponding necessities as to the supply of capital and business power. But what point between these limits should be taken at any time can be decided only by higgling and bargaining; which are however likely to be tempered somewhat by ethico-prudential considerations, especially if there be a good Court of Conciliation in the trade.

The case is in practice even more complex, because each group of employés is likely to have its own union, and to fight for its own hand. The employers act as buffers: but a strike for higher wages on the part of one group, may in effect strike the wages of some other group almost as hard as the employers' profits.

We must postpone the consideration of the causes and effects of trade combinations, and of alliances and counter-alliances among employers and employed, as well as among traders and manufacturers. They present a succession of picturesque incidents and romantic transformations, which arrest public attention, and seem to indicate a coming change of our social arrangements now in one direction and now in another; and their importance is certainly great and grows rapidly. But it is apt to be exaggerated. Many of them are little more than eddies, such as have always fluttered over the surface of progress. And though they are on a larger and more imposing scale in this modern age than before; yet now, as ever, the main body of movement depends on the deep silent strong stream of the tendencies of Normal Distribution and Exchange; which "are not seen," but which control the course of those episodes which "are seen[1]."

[1] In Conciliation and Arbitration, the central scientific difficulty is to discover what is that normal level from which the decisions of the Court must not depart far under penalty of destroying their own authority. This point has been argued in Mr L. L. Price's *Industrial Peace* and in a Preface to it by the present writer. In relation to the subject of this section in general see Book v. Ch. II. § 3; Ch. VI. § 2 and Ch. VIII.

CHAPTER XIII.

THE INFLUENCE OF PROGRESS ON VALUE.

The field of employment for capital and labour

§ 1. THE field of employment which any place offers for labour and capital depends firstly on its natural resources; secondly on the power of turning them to good account, derived from its progress of knowledge and of social and industrial organization; and thirdly on the access that it has to markets in which it can sell those things of which it has a superfluity. The importance of this last condition is often underrated; but it stands out prominently when we look at the history of new countries.

is not always rich in new countries which have no good access to markets of the Old World.

It is commonly said that wherever there is abundance of good land to be had free of rent, and the climate is not unhealthy, the real earnings of labour and the interest on capital must both be high. But this is only partially true. The early colonists of America lived very hardly. Nature gave them wood and meat almost free: but they had very few of the comforts and luxuries of life. And even now there are, especially in South America and Africa, many places to which Nature has been abundantly generous, which are nevertheless shunned by labour and capital, because they have no ready communications with the rest of the world. On the other hand high rewards may be offered to capital and labour by a mining district in the midst of an alkaline desert, when once communications have been opened up with the outer world, or again by a trading centre on a barren sea-coast; though if limited to their own resources, they could support but a

scanty population, and that in abject poverty. And the splendid markets which the Old World has offered to the products of the New since the growth of steam communication have rendered North America and Australia the richest large fields for the employment of capital and labour that there have ever been.

Old countries offer a market for mortgages of the future incomes of a new country,

But after all the chief cause of the modern prosperity of new countries lies in the markets that the old world offers, not for goods delivered on the spot, but for promises to deliver goods at a distant date. A handful of colonists having assumed rights of perpetual property in vast tracts of rich land, are anxious to reap in their own generation its future fruits; and as they cannot do this directly, they do it indirectly, by selling in return for the ready goods of the old world, promises to pay much larger quantities of the goods that their own soil will produce in a future generation. In one form or another they mortgage their new property to the old world at a very high rate of interest. Englishmen and others who have accumulated the means of present enjoyment hasten to barter them for larger promises in the future than they can get at home: a vast stream of capital flows to the new country, and its arrival there raises the rate of wages very high[1].

and the consequent influx of capital into the latter raises wages there very high.

For the settlers being full of enterprise, and seeing their way to acquiring private title-deeds to property that will shortly be of great value, are eager to become independent undertakers, and if possible employers of others. So wage earners have to be attracted by high wages, which are paid in a great measure out of the commodities borrowed from the old world on mortgages, or in other ways[2].

[1] The new capital filters but slowly towards the outlying districts: it is so scarce there, and there are so many persons eager to have it, that it often commands for a long time two per cent. a month, from which it falls by gradual stages down to six or perhaps even five per cent. a year. In this connection compare the remarks on the relation between Gross and Net Interest, Book VII. Ch. VII. § 6.

[2] It is difficult to estimate exactly the real rate of (Efficiency) wages in outlying parts of new countries. For the workers are picked men with a natural bias towards adventure; hardy, resolute, and enterprising; men in the prime of life, who do not know what illness is; and the strain of one kind and another which they go through, is more than the average English, and much more than the average European labourer could sustain. There are no poor among them,

As time goes on though the Law of Diminishing Return may not be acting very strongly,

As population increases, the best situations being already occupied, nature gives generally less return of raw produce to the marginal effort of the cultivators; and this tends a little to lower wages. But even in agriculture the Law of Increasing Return is constantly contending with that of Diminishing Return, and many of the lands which were neglected at first, give a generous response to careful cultivation[1]; and meanwhile the development of roads and railroads, and the growth of varied markets and varied industries, render possible innumerable economies in production. Thus the actions of the Laws of Increasing and Diminishing Return appear pretty well balanced, sometimes the one, sometimes the other being the stronger.

There is no reason so far why the rate of (Real Efficiency) wages should fall. For if, taking one thing with another, the Law of production is that of Constant Return, there will be no change in the reward to be divided between a dose of capital and labour; that is, between capital and labour working together in the same proportions as before. And, since the rate of interest has fallen, the share which capital takes of this stationary joint reward is less than before; and therefore the amount of it remaining for labour is greater[2].

the influx of capital becomes relatively slower and wages tend to fall.

But though the Law of production of commodities may be one of Constant Return, that of the production of new title-deeds to land is one of rapidly Diminishing Return. The influx of foreign capital, though perhaps as great as ever,

because there are none who are weak: if anyone becomes ailing, he is forced to retire to some more thickly peopled place where there is less to be earned, but where also a quieter and less straining life is possible. Their earnings are very high if reckoned in money; but they have to buy at very high prices, or altogether dispense with, many of the comforts and luxuries which they would have obtained freely, or at low prices, if they had lived in more settled places. It is however true that many of these things are of but little real utility, and can be easily dispensed with, where no one has them and no one expects them.

[1] Comp. Book IV. Ch. III. §§ 5, 6.

[2] Of course the aggregate share of capital may have increased. For instance, while labour has doubled capital may have quadrupled, and the rate of interest may be two-thirds of what it was; and then, though each dose of capital gets a lower reward by one-third, and leaves for labour a larger share of the joint product of a dose of capital and labour, the aggregate share of capital will have risen in the ratio of 8 to 3. Much of the argument of Mr Henry George's *Progress and Poverty* is vitiated by his having overlooked this distinction.

becomes less in proportion to the population; wages are no longer paid largely with commodities borrowed from the old world: and this is the chief reason of the subsequent fall in Real Efficiency wages; that is, in the necessaries, comforts and luxuries of life which can be earned by work of a given efficiency[1].

England's present industrial problems are a development of those of the last century.

§ 2. The influence which access to distant markets exerts on the growth of the National Dividend has been conspicuous in the history of England also. Her present economic condition is the direct result of those tendencies to production on a large scale, and to wholesale dealings in labour as well as in goods which had long been slowly growing; but which in the eighteenth century received a twofold impetus from mechanical inventions, and the growth of consumers beyond the seas, who imported large quantities of goods of the same pattern[2]. Then were the first beginnings of that system of interchangeable parts, and the application of special machinery to make the special machinery by which nearly everything in common use is made[3]. Then first was seen the full force which the Law of Increasing Return gives in a manufacturing country with localized industries and large capitals; particularly when many of the largest capitals are in the hands of people combined either into an eighteenth century Joint Stock or Regulated Company, or into a modern Trust. And then began that careful "grading" of goods for sale in distant markets, which has already led to national and even

[1] But there are two other causes tending to lower average daily wages measured in money. The first is, that as the comforts and luxuries of civilization increase, the average efficiency of labour is lowered by the influx of immigrants of a less sturdy character than the earlier settlers. And the second is, that many of these new comforts and luxuries do not enter directly into the money wages, but are an addition to it. We took account of them when arriving at the conclusion that the action of the Law of Increasing Return would on the whole countervail that of Diminishing Return: and we ought to count them in at their full value when tracing the changes in Real wages. Many historians have compared wages at different epochs with exclusive reference to those things which have always been in common consumption. But from the nature of the case, it is just these things to which the Law of Diminishing Return applies; and which tend to become scarce as population increases. The view thus got is one-sided and misleading in its general effect.

[2] See Book I. Ch. III. § 4.

[3] See Book IV. Ch. IX. X. XI.

international speculative combinations in produce markets and stock exchanges; and the future of which no less than that of more lasting combinations among producers, whether undertakers of industry or working men, is the source of some of the gravest practical problems with which the coming generation will have to deal[1].

The key-notes of the modern movement.

The key-notes of the modern movement are the reduction to one pattern of a great number of tasks; the diminution of friction of every kind which might hinder powerful agencies from combining their action and spreading their influence over vast areas; and the development of transport by new methods and new forces. The macadamized roads and the improved shipping of the eighteenth century broke up local combinations and monopolies, and offered facilities for the growth of others extending over a wider area: and in our own age the same double tendency is resulting from every new extension and cheapening of communication by land and sea, by printing-press and telegraph.

In the eighteenth century foreign trade affected chiefly that part of the National Dividend which consisted of comforts and luxuries.

§ 3. But though in the eighteenth century, as now, the real National Dividend of England depended much on the action of the Law of Increasing Return with regard to her exports, the mode of dependence has very much changed. Then England had something approaching to a monopoly of the new methods of manufacture; and each bale of her goods would be sold—at all events when their supply was artificially limited—in return for a vast amount of the produce of foreign countries. But, partly because the time was not yet ripe for carrying bulky goods great distances, her imports from the far East and the far West consisted chiefly of comforts and luxuries for the well-to-do; they had but little direct effect in lowering the labour-cost of necessaries to the English workman. Indirectly indeed her new trade lowered the cost of hardware, clothing and such other English manufactures as he consumed; because the production on a large scale of these things for consumers beyond the sea cheapened these productions for him. But it had very little effect on the cost of his food; which was left to rise under the action of the Law of Diminishing Return and

[1] Comp. Book v. Ch. i. §§ 3, 4.

the increase of population; for that began to rise rapidly as soon as the growth of new manufacturing centres had removed the customary restraints of a narrow village. And a little later the great war and a series of bad harvests raised that cost to much the highest point it has ever reached in Europe[1].

But now it gives England an immense command over necessaries.

But gradually the influence of foreign trade began to tell on the cost of production of our staple food. As the population of America spread westward from the Atlantic, richer and still richer wheat soils have come under cultivation; and the economies of transport have increased so much, especially in recent years, that the total cost of importing a quarter of wheat from the farms on the outskirts of cultivation has diminished rapidly, though the distance of that margin has been increasing. And thus England has been saved from the need of more and more intensive cultivation. The bleak hill sides up which the wheat fields were laboriously climbing in Ricardo's time, have returned to pasture, and the ploughman works now only where land will yield plentiful returns to his labour; whereas if England had been limited to her own resources, he must have plodded over ever poorer and poorer soils, and must have gone on continually re-ploughing land that had already been well ploughed, in the hope of adding by this heavy toil an extra bushel or two to the produce of each acre. Perhaps in an average year now, the ploughing which only just pays its expenses, the ploughing "on the margin of cultivation" gives twice as much produce as it gave in Ricardo's time, and five times as much or more, as it would have given now, if with her present population England had been compelled to raise all her own food[2].

[1] In Book I. Ch. III. §§ 6, 7 a caution is entered against treating the new forces of competition as exclusively responsible for those sufferings of the English working classes at the end of the last century and the beginning of this which were partly due to war, bad harvests, and last, but not least, a bad Poor Law. That law was itself antagonistic to free competition, which it set aside in favour of a crude form of socialism, that exercised a degrading influence on character. With reference to the growth of population in England, see Book IV. Ch. IV. §§ 7, 8.

[2] The diminution of England's agricultural population is however somewhat less than at first sight appears. See Book IV. Ch. X. § 4; and a paper "On the

England has gained less than at first appears from the recent improvements in manufactures.

§ 4. Every improvement in the manufacturing arts increases England's power of meeting the various wants of backward countries; so that it answers their purpose to divert their energies from making things by hand for their own use, to growing raw material with which to buy manufactures from her. In this way the progress of invention opens a wider field for the sale of her special products, and enables her more and more to confine her own production of food to conditions under which the Law of Diminishing Return does not make itself much felt. But the same is not true of our trade with America, who quickly follows if she does not anticipate, England's improvements. The Bessemer, and other new processes, have enabled England to make steel that will push its way further than it could before in India and China, but not in America. The amount of wheat which can be bought in Illinois with a ton of steel cannot be more than the produce of as much capital and labour as would make a ton of steel in Illinois by the new processes; and therefore it has fallen in the same proportion as these processes have increased the efficiency of English labour in making steel. It is for this reason, as well as because of the heavy tariffs levied on her goods by many countries, that in spite of England's large trade, the progress of invention in the manufacturing arts has added less than might have been otherwise expected to her real income or National Dividend.

It is no slight gain that she can make cheaply clothes and furniture and other commodities for her own use: but those improvements in the arts of manufacture which she has shared with other nations, have not directly increased the amount of raw produce which she can obtain abroad with the product of a given quantity (or dose) of her own capital and labour. Probably more than three-fourths of the whole benefit she has derived from the progress of manufactures during the present century has been through its indirect influences in lowering the cost of transport of men and goods, of water and light, of electricity and news. The

Her highest gains have come from the cheapening of transport of various kinds.

alleged Depopulation of the Rural Districts of England, &c.," by Dr Ogle, in the *Statistical Journal*, Jan. 1889.

dominant economic fact of our own age is the development not of the Manufacturing, but of the Transport industries. It is these that are growing most rapidly in aggregate volume and in individual power, and which are giving rise to most anxious questions as to the tendencies of large capitals to turn the forces of economic freedom to the destruction of that freedom: but on the other hand it is they also which have done by far the most towards increasing England's real National Dividend.

Some of the influences of progress on the normal labour-values, firstly of the chief requisites of a civilized life, viz. corn,

§ 5. Thus the new economic age has brought with it great changes in the relative values of labour and the chief requisites of life; and many of these changes are of a character which could not have been anticipated at the beginning of this century. The America then known was ill-suited for growing wheat; and the cost of carrying it great distances by land was prohibitive. The labour value of wheat—that is the amount of labour which will purchase a peck of wheat,—was then at its highest point, and now is at its lowest[1].

meat,

Meat was then scarcely touched by the working classes; while now, though its price is a little higher than it was then, the working man on the average probably consumes more of it than at any other time in English history[2].

[1] It would appear that agricultural wages have been generally below a peck of wheat a day; but that in the first half of the eighteenth century they were about a peck, in the fifteenth a peck and a half or perhaps a little more, while now they are two or three pecks. Prof. Rogers' estimates for the middle ages are higher: but he seems to have taken the wages of the more favoured part of the population as representative of the whole. Wheat now is of a better quality than in the middle ages even after a good harvest; and then after a bad harvest much of it was so musty that nowadays it would not be eaten at all. The wheat seldom became bread without paying an extravagant monopoly charge to the mill belonging to the lord of the manor.

[2] Where population is very sparse, Nature supplies grass and therefore animal food almost *gratis* (see Book IV. Ch. II. § 4); and in South America beggars pursue their calling on horseback. During the middle ages the population of England was always dense enough to give a considerable labour value to meat; though it was of poor quality. For cattle, though only about a fifth as heavy as now, had very large frames: their flesh was chiefly in those parts from which the coarsest joints come; and since they were nearly starved in the winter and fed up quickly on the summer grass, the meat contained a large percentage of water, and lost a great part of its weight in cooking. At the end of the summer they were slaughtered and salted: and salt was dear. Even the well-to-do scarcely

house-room.

Turning next to the rent of house room, we find that ground-rents in towns have risen, both extensively and intensively. For an increasing part of the population is living in houses on which ground-rents at an urban scale have to be paid, and that scale is rising: though the occupants get in return the excitements and other advantages, such as they are, of modern town life. But house rent proper, that is what remains of the total rent after deducting the full rental value of the ground, is probably little, if at all, higher than at any previous time for similar accommodation. For the labour cost of building materials has not much altered, and the rate of profits on the turnover which is earned by capital engaged in building is generally low[1].

fuel.

Fuel, like grass, is often a free gift of nature to a sparse population; and during the middle ages the cottagers could generally, though not always, get the little brushwood fire needed to keep them warm as they huddled together round it in huts which had no chimney through which the heat could go to waste. But as population increased the scarcity of fuel pressed heavily on the working classes, and would

tasted fresh meat during the winter. It is a significant fact that rabbits, which were probably neither better nor worse than in our own time, were then ten times as dear relatively to an ox as now. (Their furs were highly prized, but only counted for a quarter of their whole value. Rogers' *History*, Vol. I. p. 583).

[1] The labour value of wood, though lower than at the beginning of the century, is higher than in the middle ages: but that of mud, brick or stone walls has not much changed; while that of iron—to say nothing of glass—has fallen much.

The popular belief that house rent proper has risen, appears to be due to an imperfect acquaintance with the way in which our forefathers were really housed. The modern suburban artisan's cottage contains sleeping accommodation far superior to that of the gentry of the middle ages. The working classes had no other beds than loose straw, reeking with vermin, and resting on damp mud floors: and these were probably less unwholesome, when bare and shared between human beings and live stock, than when an attempt at respectability covered them with rushes: for these were nearly always vile with long accumulated refuse. It is undeniable that the housing of the poorest classes in our towns now is destructive both of body and soul: and that with our present knowledge and resources we have neither cause nor excuse for allowing it to continue. And it is true that in earlier times bad housing was a less evil than now, in so far as those who were badly housed by night had abundant fresh air by day. But a long series of records, ending with the evidence of Lord Shaftesbury and others before the recent Commission on the Housing of the Poor, establishes the fact that all the horrors of the worst dens of modern London had their counterpart in worse horrors of the lairs of the lowest stratum of society in every previous age.

have arrested England's progress altogether, had not coal been ready to take the place of wood as fuel for domestic purposes, as well as for smelting iron. It is now so cheap that even the comparatively poor can keep themselves warm indoors without living in an unwholesome and stupifying atmosphere.

clothing.

This is one of the great services that coal has wrought for modern civilization. Another is to provide cheap underclothing, without which cleanliness is impossible for the masses of the people in a cold climate: and this is perhaps the chief of the benefits that England has gained from the direct application of machinery to making commodities for her own use. Another, and not less important service is to provide abundant water even in large towns[1]; and another to supply, with the aid of mineral oil, that cheap and artificial light which is needed not only for some of man's work, but, what is of higher moment, for the good use of his evening leisure. To this group of requisites for a civilized life, derived from coal on the one hand, and modern means of Transport on the other, we must add, as has just been noticed, the cheap and thorough means of communication of news and thought by steam presses, by steam carried letters and steam made facilities for travel. All these agencies, aided by electricity, are rendering possible the civilization of the masses in countries the climate of which is not so warm as to be enervating; and are preparing the way for true self-government and united action by the whole people, not merely of a town such as Athens, Florence or Bruges, but of a broad country, and even in some respects of the whole civilized world[2].

water.

light.

news and travel.

§ 6. We have seen that the National Dividend is at once the aggregate net product of, and the sole source of payment for, all the agents of production within the country; that the larger it is, the larger, other things being equal,

The influence of progress on the values of the chief

[1] Primitive appliances will bring water from high ground to a few public fountains: but the omnipresent water supply which both in its coming and its going performs essential services for cleanliness and sanitation, would be impossible without coal-driven steam pumps and coal-made iron pipes.

[2] Compare Book I. Ch. II. §§ 6, 7.

agents of production: it has sometimes lowered the value of English agricultural land,

will be the share of each agent of production, and that an increase in the supply of any agent will generally lower its price, to the benefit of other agents.

This general principle is specially applicable to the case of land. An increase in the amount or productiveness of the land that supplies any market redounds in the first instance to the benefit of those capitalists and workers, who are in possession of other agents of production for the same market. And the influence on values which has been exerted in the modern age by the new means of Transport is nowhere so conspicuous as in the history of land. Its value rises with every improvement in its communications with markets in which its produce can be sold, and its value falls with every new access to its own markets of produce from more distant places[1].

but not of agricultural and urban land taken together.

But as Malthus contended, and Ricardo admitted, anything that promotes the prosperity of the people promotes also in the long run that of the landlords of the soil. English rents never rose so fast as when, at the beginning of this century, a series of bad harvests struck down a people that could not import their food. But the adoption of free trade in corn in the middle of the century, and the subsequent expansion of American wheat fields, are rapidly raising the real value of the land *urban* and *rural* taken together; that is they are raising the amount of the necessaries, comforts and luxuries of life which can be purchased by the aggregate rental of all the landowners urban and rural taken together[2].

[1] Compare Book VI. Ch. IV. and Book VII. Ch. X.

[2] Mr W. Sturge, (in an instructive paper read before the Institute of Surveyors, Dec. 1872) estimates that the agricultural (money) rent of England doubled between 1795 and 1815, and then fell by a third till 1822; after that time it has been alternately rising and falling; and it is now about 45 or 50 millions as against 50 or 55 millions about the year 1873, when it was at its highest. It was about 30 millions in 1810, 16 millions in 1770, and 6 millions in 1600 [Compare Mr Giffen's *Growth of Capital*, Ch. V., and Porter's *Progress of the Nation*, Sect. II. Ch. I.]. But the rental of urban land in England is now rather greater than the rent of agricultural land: and in order to estimate the full gain of the landlords from the expansion of population and general progress, we must reckon in the values of the land on which there are now railroads, mines, docks, &c. Taken all together, the money rental of England's soil is probably twice as high, and its Real rental three or four times as high as it was when the corn laws were repealed.

§ 7. Political Arithmetic may be said to have begun in England in the seventeenth century; and from that time onwards we find a constant and nearly steady increase in the amount of accumulated wealth per head of the population[1].

It has greatly increased the supply of capital,

This increase of capital per head tended to diminish its marginal utility, and therefore the rate of interest on new investments; but not uniformly, because there were meanwhile great variations in the demand for capital, both for political and military and for industrial purposes. Thus the rate of interest which was vaguely reported to be ten per cent. during a great part of the middle ages, had sunk to three per cent. in the earlier half of the eighteenth century; but the immense industrial and political demand for capital raised it again, and it was relatively high during the great war. It fell again when the political drain ceased; but it again rose in the middle of this century, when railways and the development of the Western States of America and of Australia made a great new demand for capital. These new demands have not slackened; but the rate of interest is again falling fast, in consequence of the great recent accumulations of wealth in England, on the Continent, and above all in America[2].

and has lowered its proportionate though not its total income.

[1] Making use of Mr Giffen's survey of contemporary estimates (*Growth of Capital*, Ch. v.) we may take the following pairs of figures as giving approximately the number of millions in the population of England, and the number of £ in the property per head:—A.D. 1600, 4½, £22; 1700, 5¾, £60; 1750, 7, £70; 1800, 9, £167; 1850, 18 [£180?]; 1885, 27½, £315. In all these estimates the land is reckoned as part of the national "property" or "capital" and about £30 should be taken from the last estimate of £315, if it is desired to exclude that part of the wealth of Englishmen which consists of property or the right to property in foreign countries. Of course the basis of all valuations of property is income: for the value of any particular thing depends not on the cost of producing it, but on the capitalized value of the future Rents or Quasi-rents which it is expected to yield; and Mr Giffen has deliberately taken the national income as the basis of his estimates. But it must be recollected that a fall in the rate of interest raises the number of years at which Rents and Quasi-rents are capitalized; and this raises the nominal estimate of national wealth without making any addition to its real substance. On the other hand, as is explained in the Note at the end of Book VII. Ch. VII., borrowers are willing to pay a high rate of interest, if they expect to pay back their loans in a depreciated currency; and therefore a rise in the rate of interest which makes the national wealth appear to grow more slowly than it is doing, is often accompanied by a rise in prices, which has the opposite effect: and vice versâ.

[2] Attention has already been called to the fact that when the term "capital" is used broadly so as to include all accumulated wealth, the aggregate "interest" on

There is a relative fall in the earnings of trained ability.

§ 8. The growth of general enlightenment and of a sense of responsibility towards the young has turned a great deal of the increasing wealth of the nation from investment as Material capital to investment as Personal capital. There has resulted a largely increased supply of trained intelligence, which has greatly increased the National Dividend, and raised the average income of the whole people: but it has taken away from this trained intelligence much of that scarcity value which it used to possess, and has lowered its earnings not indeed absolutely, but relatively to the general advance; and it has caused many occupations, which not long ago were accounted skilled, and which are still spoken of as skilled, to rank for wages with unskilled labour[1].

capital (or more strictly its Quasi-rent, see the last note) must be used with corresponding breadth so as to include the "usance" of all accumulated wealth (Book II. Ch. I., V., VI.; Book VII. Ch. III. § 2). When we speak of the National Dividend, or distributable net income of the whole nation, as divided into the shares of Labour, Capital and Land, we must be clear as to what things we are including and what things we are excluding. It will seldom make very much difference to our argument whether we use all the terms broadly, or all the terms narrowly. But it is essential that our usage should be consistent throughout any one argument; and that whatever is included on one side of the account of the demand for, and supply of, capital should be included also on the other. Thus with the broadest sense of the term (Material) capital, those who make direct use of their own property, have to be entered on both sides of the account, on the one side among those who demand capital and on the other among those who supply it. This plan will be found useful sometimes, especially in mathematical versions of economic theory. It closely resembles one that is already in common use with regard to rent. When, for instance, we are comparing the rental value of two counties of England, we do not make out two separate accounts, one for the land that is let out to farmers, and the other for that which is cultivated by the owners, but we suppose the owners of the latter land to pay rent to themselves, and we add into our totals the rents at which that land could probably be let. And we are following this precedent strictly when we add up the benefits derived from houses and furniture and other direct material sources of enjoyment, without separating those which are used by their owners from those which are let out on hire.

[1] A striking instance is that of writing. It is true that many kinds of office work require a rare combination of high mental and moral qualities; but almost any one can be easily taught to do the work of a copying clerk, and probably there will soon be few men or women in England who cannot write fairly well. When all can write, the work of copying, which used to earn higher wages than almost any kind of manual labour, will rank among unskilled trades. In fact the better kinds of artisan work educate a man more, and will be better paid than those kinds of clerk's work which call for neither judgment nor responsibility. The best thing that an artisan can do for his son is to bring him up to do thoroughly the work that lies at his hand, so that he may understand the mechanical, chemical or other scientific principles that bear upon it; and may enter into

Earnings in old and familiar skilled occupations tend to fall relatively to those in new.

Again a new branch of industry is often difficult simply because it is unfamiliar; and men of great force and skill are required to do work, which when the track has once been well beaten, can be done by men of ordinary capacity or even by women and children. At first then its wages are high, but as it becomes familiar they fall: and it so happens that many of the statistics which seem to lend themselves most readily to be used as typical of general movements of wages are taken from trades which were comparatively new a generation or two ago, and are now within the grasp of men of much less real ability than those who pioneered the way for them[1].

The consequence of such changes as these is to increase the number of those employed in occupations which are called skilled, whether the term is now properly applied or not: and this constant increase in the numbers of workers in the higher classes of trades has caused the average of all labour to rise much faster than the average of representative wages in each trade[2].

In the middle ages, though some men of great ability

the spirit of any new improvement that may be made in it. If his son should prove to have good natural abilities, he is far more likely to rise to a high position in the world from the bench of an artisan than from the desk of a clerk.

[1] Comp. Book IV. Ch. VI. §§ 1, 2; and Ch. IX. especially § 6. As the trade progresses improvements in machinery are sure to lighten the strain of accomplishing any given task; and therefore to lower task wages rapidly. But meanwhile the pace of the machinery, and the quantity of it put under the charge of each worker, may be increased so much that the total strain involved in the day's work is greater than before. On this subject employers and employed frequently differ. It is for instance certain that Time wages have risen in the textile trades; but the employés aver, in contradiction to the employers, that the strain imposed on them has increased more than in proportion; that is that Efficiency-wages have fallen. In this controversy wages have been estimated in money; but when account is taken of the increase in the purchasing power of money there is no doubt that Real Efficiency-wages have risen.

[2] This may be made clearer by an example. If there are 500 men in grade A earning 12*s*. a week, 400 in grade B earning 25*s*. and 100 in grade C earning 40*s*. the average wages of the 1000 men are 20*s*. If after a time 300 from grade A have passed on to grade B, and 300 from grade B to grade C, the wages in each grade remaining stationary, then the average wages of the whole thousand men will be about 28*s*. 6*d*. And even if the rate of wages in each grade had meanwhile fallen 10 per cent., the average wages of all would still be about 25*s*. 6*d*., that is would have risen more than 25 per cent. Neglect of such facts as these, as Mr Giffen has pointed out, is apt to cause great errors.

Artisans' wages

remained artisans all their lives, and became artists[1], yet as a class the artisans ranked more nearly with the unskilled labourers than they do now. At the beginning of the new industrial era a hundred years ago the artisans had lost much of their old artistic traditions and had not yet acquired that technical command over their instruments, that certainty and facility in the exact performance of difficult tasks which belong to the modern skilled artisan; and observers early in this century are full of wonder at the social gulf that opened out in their own generation between the artisan and the unskilled labourer. This social change was partly a consequence of the increase of the wages of the artisan, which rose to about double those of the unskilled labourer; partly to the same cause that secured him his high wages, that is the great increase in the demand for highly skilled labour, especially in the metal trades, and the consequent rapid absorption of the strongest characters among the labourers and their children into the ranks of the artisans; for the breaking down, just at that time, of the old exclusiveness of the artisans, had made them less than before an aristocracy by birth and more than before an aristocracy by worth. But about a generation ago, as has just been explained, some of the simpler forms of skilled trades began to lose their scarcity value, as their novelty wore off; and at the same time continually increasing demands began to be made on the ability of those in some trades, that are traditionally ranked as unskilled. The navvy for instance, and even the agricultural labourer, have often to be trusted with expensive and complicated machinery, which a little while ago were thought to belong only to the skilled trades, and the Real wages of these two representative occupations are rising fast[2].

rose relatively to those of unskilled labour at the beginning of the century:

but now that tendency is reversed.

[1] Compare Book IV. Ch. VI. § 6.

[2] The rise of wages of agricultural labourers would be more striking than it is, did not the spread of modern notions to agricultural districts cause many of the ablest children born there to leave the fields for the railway or the workshop, to become policemen, or to act as carters or porters in towns. Perhaps there is no stronger evidence of the benefits of modern education and economic progress than the fact that those who are left behind in the fields, though having less than an average share of natural abilities, are yet able to earn much higher Real wages than their fathers.

Again there are some skilled and responsible occupations, such as those of the head heaters and rollers in iron works, which require great physical strength, and involve much discomfort: and in them wages are very high. For the temper of the age makes those who do high class work, and can earn good wages easily, refuse to undergo hardship, except for a very high reward.

There is a relative fall in the wages of elderly men;

§ 9. We may next consider the changes in the relative wages of old and young men, of women and children.

The conditions of industry change so fast that long experience is in some trades almost a disadvantage, and in many it is of far less value than a quickness in taking hold of new ideas and adapting one's habits to new conditions. In these trades an elderly man finds it difficult to get employment except when trade is brisk, at all events if he is a member of a union which will not allow him to work for less than the full wages of the district. In any case he is likely to earn less after he is fifty years old than before he is thirty; and the knowledge of this is tempting artisans to follow the example of unskilled labourers, whose natural inclination to marry early has always been encouraged by the desire that their family expenses may begin to fall off before their own wages begin to shrink[1].

and a rise in the wages of boys and girls,

A second and even more injurious tendency of the same kind is that of the wages of children to rise relatively to those of their parents. Machinery has displaced many men, but not many boys; the breaking down of the customary restrictions which excluded them from some trades are giving way; and these changes, together with the spread of education, while doing good in almost every other direction, are doing harm in this that they are enabling boys, and even girls, to set their parents at defiance and start in life on their own account.

and of women.

The wages of women are for similar reasons rising fast relatively to those of men. And this is a great gain in so

[1] Trades-unions are afraid that many abuses might creep in if they allowed men "with grey hairs" to compete for employment at less than full wages. But many of them are coming to see that it is to their own interest, as it certainly is to that of the community, that such men should not be forced to be idle.

far as it tends to develop their faculties; but an injury in so far as it tempts them to neglect their duty of building up a true home, and of investing their efforts in the Personal capital of their childrens' character and abilities.

The earnings of exceptional genius are rising, especially in business, because they can command a wider scope than ever before.

§ 10. The relative fall in the incomes to be earned by moderate ability, however carefully trained, is accentuated by the rise in those that are obtained by many men of extraordinary ability. There never was a time at which moderately good oil paintings sold more cheaply than now, and there never was a time at which first-rate paintings sold so dearly. A business man of average ability and average good fortune gets now a lower rate of profits on his capital than at any previous time; while yet the operations in which a man exceptionally favoured by genius and good luck can take part are so extensive as to enable him to amass a huge fortune with a rapidity hitherto unknown.

The causes of this change are chiefly two; firstly, the general growth of wealth; and secondly, those new facilities for communication which enable men, who have once attained a commanding position, to apply their constructive or speculative genius to undertakings vaster, and extending over a wider area, than ever before[1].

[1] It is the first cause that enables some barristers to command very high fees: for a rich client whose reputation, or fortune, or both, are at stake will scarcely count any price too high to secure the services of the best man he can get: and it is this again that enables jockeys and painters and musicians of exceptional ability to get very high prices. At the beginning of this century a famous singer, Mrs Billington, is said to have earned £10,000 in a season: and so long as the number of persons who can be reached by a human voice is strictly limited, it is not very likely that any singer will make an advance on this to be compared with that which the business leaders of the present generation have made on those of the last; for in their case the second cause cooperates with the first. The most conspicuous instances of the power which the modern scale of business may put into the hands of a man of first-rate business genius, are to be found in the recent history of America, where many men who began life poor, have amassed more than £10,000,000 each. Of these gains the greater part have come from the wrecks of the rival speculators who had been worsted in the race; but in some cases they have been earned chiefly by the supreme economizing force of a great constructive genius working at a new and large problem with a free hand: the late Mr Vanderbilt for instance probably saved to the people of the United States more than he accumulated himself.

But some of these gains have been derived from those opportunities for the formation of trade combinations engineered by a few able, wealthy and daring men to exploit for their own benefit a great body of manufactures, or the

Progress is fast improving the condition of the great body of the working classes,

§ 11. But these fortunes are exceptional. The diffusion of knowledge, the improvement of education, the growth of prudent habits among the masses of the people, and the opportunities which the new methods of business offer for the safe investment of small capitals:—all these forces are telling on the side of the poorer classes as a whole relatively to the richer. The returns of the income tax and the house tax, the statistics of consumption of commodities, the records of salaries paid to the higher and the lower ranks of servants of Government and public companies, tend in the same direction, and indicate that middle class incomes are increasing faster than those of the rich; that the earnings of artisans are increasing faster than those of the professional classes, and that the wages of healthy and vigorous unskilled labourers are increasing faster even than those of the average artisan[1].

but not of those who are unfit for hard work.

Progress then has done much: but there still remains a great, and—in consequence of improved sanitation—perhaps a growing Residuum of persons who are physically, mentally or morally incapable of doing a good day's work with which to earn a good day's wage; and some of those who are called artisans, together with many unskilled labourers, work hard for over long hours, and provide for others the means of refine-

trade and traffic of a large district. That part of this power, which depends on political conditions, and especially on the Protective tariff, may pass away. But the area of America is so large, and its condition so changeful, that the slow and steady going management of a great joint-stock company on the English plan is at a disadvantage in competition with the vigorous and original scheming, the rapid and resolute force of a small group of wealthy capitalists, who are willing and able to apply their own resources in great undertakings. The numbers of such men are exceptionally large in America: where the ever-shifting conditions of business life, enable natural selection to bring to the front the best minds for the purpose from their vast population, almost every one of whom, as he enters on life, resolves to be rich before he dies. The modern developments of business and of business fortunes are of exceptional interest and instruction to Englishmen: but their lessons will be misread unless the essentially different conditions of business life in the old world and the new are constantly borne in mind.

[1] A great body of statistics relating to nearly all civilized countries, and uniformly tending in this direction is contained in M. Leroy Beaulieu's *Essai sur la répartition des Richesses, et sur la tendance à une moindre inégalité des conditions*, 1881. Mr Goschen's Address to the Royal Statistical Society in 1887 on *The increase of moderate incomes* points the same way; and so do the careful studies of wage statistics made by Mr Giffen in his private and in his official capacity.

ment and luxury, but obtain neither to themselves nor their children the means of living a life that is worthy of man.

The temptation to understate the benefits of progress.

There is a strong temptation to over-state the economic evils of our own age, and to ignore the existence of similar and worse evils in earlier ages; for by so doing we may for the time stimulate others, as well as ourselves, to a more intense resolve that the present evils shall no longer be allowed to exist. But it is not less wrong, and generally it is much more foolish, to palter with truth for a good than for a selfish cause. And the pessimist descriptions of our own age, combined with romantic exaggerations of the happiness of past ages, must tend to the setting aside of methods of progress, the work of which if slow is yet solid; and to the hasty adoption of others of greater promise, but which resemble the potent medicines of a charlatan, and while quickly effecting a little good, sow the seeds of widespread and lasting decay. This impatient insincerity is an evil only less great than that moral torpor which can endure that we, with our modern resources and knowledge, should submit patiently to the continued destruction of all that is worth having in multitudes of human lives, and solace ourselves with the reflection that anyhow the evils of our own age are less than those of the past.

Progress in relation to leisure.

§ 12. Finally, in measuring the influence of progress on wages, some account must be taken of changes in the strain and exertion by which they are earned. In warm countries a few hours' work often suffice to earn all the necessaries of life, except the cool fresh air that is needed for the full enjoyment both of work and of leisure. In the middle ages people had plenty of leisure in winter, and took a good many holidays in summer: but England's modern industrial greatness has been achieved by the ability and willingness of her people to work hard and steadily. It is doubtful whether, even in the dark years of the Great War, their hours of labour were on the average longer than those of other Western nations, and now their hours are relatively short: but men of the Anglo-Saxon race in all parts of the world work hard while about it, and do more work in the year than any others.

The Anglo-Saxon race works hard though not for long hours.

Perhaps £100,000,000 annually are spent even by the working classes, and £400,000,000 by the rest of the population of England in ways that do little or nothing towards making life nobler or truly happier. And it might be well that all should work less, provided that the new leisure be spent well, and the consequent loss of material income be met exclusively by the abandonment by all classes of the least worthy methods of consumption. But this result is not easily to be attained: for human nature changes slowly, and in nothing more slowly than in the hard task of learning to use leisure well. And on the whole it seems more urgent to increase the material means of a noble and refined life for all classes, and especially the poorest, than to diminish much the hours of work of those who are not at present overworked. But children whose education is cut short, and adults, who have not time for their family and social duties, are overworked: and so are those who are exhausted by their work, even though it does not last very long; for there are some exceptional kinds of work, such as that of working in a mine at a very high temperature, which involve so great a strain that they can be performed efficiently only for a few hours a day[1].

Well spent leisure would be of more real worth than a great part of our material enjoyments. But as things are, an increase in the incomes of the poor is generally more to be desired than an increase of leisure.

It is probable that there are few trades in which a person can with advantage to himself and the community be actually working hard for more than eight hours a day; though he may do light work for longer: and he may be "on duty," ready to act when called on, for much longer. For instance the watchman on a branch line, on which there are only a few trains in the day, and who has a cottage close to the gate of which he is in charge, may be on duty all day without hardship. The increasing expensiveness of

The arguments for limiting the hours of labour of human beings do not apply to machinery.

[1] We have not here to consider the case of the Residuum, many of whom are in so unwholesome a condition that they could not in a long day do the equivalent of two hours' energetic work; nor again of those who have refused to know when old fashioned industries have been beaten by modern appliances, and put out more than all their strength in a vain contest with steam force, as has been done by some branches of hand-weaving and nail-making: nor have we here to deal with those whose want of skill and resource has brought about the evils, of which "the Sweating System" is a product, and to a small extent a cause. The lives of all these people are mistakes, for which some more far-reaching remedy is needed than a mere reduction of their excessive hours of labour.

machinery, however, and the quickness with which it is rendered obsolete, increase every year the wastefulness of keeping the untiring iron and steel resting in idleness during sixteen hours out of the twenty-four. Anglo-Saxon artisans, unsurpassed in accuracy of touch, and surpassing all in sustained energy, would gain more than any others, if they would keep their machinery going at its full speed for sixteen hours a day, even though they themselves worked only eight. Such a change would increase the Net produce, and therefore the wages of each worker, because much less than before would have to be deducted from his total output on account of charges for machinery, plant, factory rent, &c.[1]

The economy of working in shifts.

§ 13. But there is a grave danger that progress may be retarded in consequence of a common belief that a reduction of the hours of labour will raise wages generally by merely making labour scarce; and independently of any effect it might

A general reduction of the hours of labour would

[1] Comp. Book VII. Ch. III. §§ 4, 5. It must however be remembered that this reasoning only applies to those trades which use, or can use, expensive plant; and that in some cases, as for instance in some mines and branches of railway work, the system of shifts is already applied so as to keep the plant almost constantly at work. No doubt certain practical objections can be urged against the plan: for instance, a machine is not so well cared for when two men share the responsibility of keeping it in order, as when one man has the whole management of it; and there is sometimes a difficulty about fixing responsibility for imperfections in the work done; but these difficulties can be in a great measure overcome by putting the machine and the work in charge of two partners. Again, there would be a little difficulty in readjusting the office arrangements to suit a day of sixteen hours. But employers and their foremen do not regard these difficulties as insuperable; and experience shews that workmen soon overcome the repugnance which they feel at first to double shifts. One set might end its work at noon, and the other begin then; or what would perhaps be better, one shift might work, say, from 5 a.m. to 11 a.m. and from 1.30 p.m. to 3.30 p.m., the second set working from 11.15 a.m. to 1.15 p.m. and from 3.45 p.m. to 9.45 p.m.; the two sets might change places at the end of each week or month. There is not enough labour in England to allow such a plan to be adopted at once in all the workshops and factories for which it is suited: but as machinery is gradually worn out or antiquated, it might be replaced on a smaller scale. On the other hand, much new machinery that cannot be profitably introduced for a ten hours' day, would be introduced for a sixteen hours' day: being once introduced it would be improved on: the arts of production would progress more rapidly; the National Dividend would increase; working men would be able to earn higher wages without tempting capital to migrate to countries where wages were lower, and all classes of society would reap benefit from the change. Double shifts are used more on the continent than in England. But they have not a fair trial there, for the hours of labour are so long as to involve work nearly all the night through; and night work is never so good as day work, partly because those who work at night do not rest perfectly during the day.

lower wages.

have in keeping machinery longer at work and therefore making it more efficient, or in stopping that premature wearing out of men through overwork which exists in a few trades even now, though it is less common than it was. Some of the arguments offered in support of this notion must stand over for discussion in connection with the Theory of Credit and Commercial Fluctuations, and with that of Foreign Trade. But there are two which should be noticed here.

The fallacy that it would cause a permanent increase in the demand for labour:

The first is based on the fallacy that the immediate and permanent effects of a change will be the same. It is seen that when there are competent men waiting for work at the factory gates, those already at work think more of keeping their posts than of striving for a rise of wages: and that if these men were away, the employers could not resist a demand for higher wages unless they were prepared to stop work altogether. It is known that the immediate effect of a reduction of the hours of labour would be to cause those employers who had contracts on hand, and some others to take on extra men. And it is argued that therefore a reduction of the hours of labour would diminish the number of the unemployed, and raise wages. But there is not, as this argument assumes, a fixed Work-Fund, a certain amount of work which has to be done, whatever the price of labour. On the contrary the demand for work comes from the National Dividend; that is, it comes from work: the less work there is of one kind, the less demand there is for work of other kinds; and if labour were scarce, fewer enterprises would be undertaken. Again the constancy of employment depends on the organization of industry and trade, and on the success with which those who arrange supply, are able to forecast coming movements of demand and of price, and to adjust their actions accordingly. This would not be better done with a short day's work than with a long one; and indeed the adoption of a short day, not accompanied by double shifts, would discourage the use of that expensive plant, the presence of which makes employers very unwilling to close their works; and would therefore probably tend, not to lessen, but to increase the inconstancy of employment[1].

and that there is a fixed Work-Fund.

It would be at least as likely to increase as to diminish the inconstancy of employment.

[1] When a large factory goes on half time, rumour bruits the news over the whole

The fallacy of arguing that all trades can gain by making their labour scarce.

§ 14. The second argument is allied to the first. It rests on the fallacy that all trades will gain by the general adoption of a mode of action which has been proved to enable one trade, under certain conditions, to gain at the expense of others. It is undoubtedly true that, if they could exclude external competition, plasterers or shoemakers would have a fair chance of raising their wages by a mere diminution of the amount of work done by each. But these gains, as we have seen[1], can be got only at the cost of a greater aggregate loss to other sharers in the National Dividend.

One trade can sometimes do so, but at a more than equal cost to other sharers of the

It is true that some of these will not be members of the working classes; part of the loss will fall on employers and capitalists whose Personal and Material capital is sunk in building or shoemaking, and part on the well-to-do users or consumers of houses or shoes. But a part of the loss will fall on the working classes as users or consumers of houses

neighbourhood, and perhaps the newspapers spread it all over the country: but few people know when an independent workman, or even a small employer, gets only a few days' work in a month; and in consequence whatever suspensions of industry there are in modern times are apt to seem more important than they are relatively to those of earlier times. In earlier times some labourers were hired by the year: but they were not free, and were kept to their work by personal chastisement. There is no evidence that the mediæval artisan had constant employment. And the most persistently inconstant employment now to be found in Europe is in those non-agricultural industries of the West which are most nearly mediæval in their methods, and in those industries of Eastern and Southern Europe in which mediæval traditions are strongest. One instance, which has come under the present writer's observation may be mentioned here. In Palermo there is a semi-feudal connection between the artisans and their patrons. Each carpenter or tailor has one or more large houses to which he looks for employment; and so long as he behaves himself fairly well, he is practically secure from competition. There are no great waves of Depression of Trade; the newspapers are never filled with accounts of the sufferings of those out of work, because their condition changes very little from time to time. But a larger percentage of artisans are out of employment at the best of times in Palermo, than in England in the centre of the worst Depression of recent years. It may be noticed that in England the majority of the employés are practically hired by the year in many trades connected with Transport; and these, as we have seen, are growing fastest, and are the representative industries of the second half of the nineteenth century, as the manufacturing trades were of the first half. And though the rapidity of invention, the fickleness of fashion, and above all the instability of Credit, do certainly introduce disturbing elements into modern industry; yet, as we shall see presently, other influences are working strongly in the opposite direction, and there seems to be no good reason for thinking that inconstancy of employment is increasing on the whole.

[1] Book v. Ch. vi. § 2, and Book vii. Ch. iii. §§ 3, 4.

or shoes; and part of the loss resulting from the plasterers' gain will fall on bricklayers, carpenters, &c., and a little of it on brickmakers, seamen employed in importing wood for building, and others.

A general reduction of output would much diminish the National Dividend, and the wage-receivers must bear a large part of the loss.

If then all workers reduce their output there will be a great loss of National Dividend; capitalists and employers may indeed bear a large share of the burden; but they are sure not to bear all. For—to say nothing of the chance that they may emigrate and take or send their free capital for investment abroad—a great and general diminution of Earnings of Management, and interest on capital, would lead on the one hand to some substitution of the higher grades of labour for the lower throughout the whole continuous descending scale of employment[1], and perhaps to some falling off in the energy and assiduity of the leading minds of industry, while on the other hand it would check the saving of capital[2]. And in so far as it had this last result it would diminish that abundance of capital relatively to labour which alone would enable labour to throw on capital a part of its share of the loss of the National Dividend[3].

[1] See Book VII. Ch. VIII. §§ 2—4.

[2] See Book IV. Ch. VII. § 9, and Book VII. Ch. VII. § 8.

[3] To take an illustration let us suppose that shoemakers and hatters are in the same grade, working equal hours, and receiving equal wages, before and after a general reduction in the hours of labour. Then both before and after the change, the hatter could buy, with a month's wages, as many shoes as were the Net product (see Book VII. Ch. III. § 4) of the shoemaker's work for a month. If the shoemaker worked less hours than before, and in consequence did less work, the Net product of his labour for a month would have diminished, unless either by a system of working double shifts the employer and his capital had earned profits on two sets of workers, or his profits could be cut down by the full amount of the diminution in output. The last supposition is inconsistent with what we know of the causes which govern the supply of capital and business power. And therefore the hatter's wages would go less far than before in buying shoes; and so all round for other trades.

A small part of the loss might be thrown on rent: but it is not necessary to allow for much under this head. Also our argument assumed, what would be sure to be approximately true, that, taken one with another, the values relatively to shoes of the things that the employer had to buy remain unchanged.

It may be well to say here dogmatically, and in anticipation of the results of the next volume, that the influence of foreign trade competition in this connection can be proved to be different from what it at first sight appears. An international agreement to diminish simultaneously the hours of labour in all trades would indeed have the important effect of preventing the workers in any one country from having to fear that capital would leave it for others. Further

And now we must conclude this part of our study of Distribution and Exchange. We have reached very few practical conclusions; because it is generally necessary to look at the whole of the economic, to say nothing of the moral and social, aspects of a practical problem before attempting to deal with it at all. And in real life nearly every economic issue depends, more or less directly, on some complex actions and reactions of Credit, of Foreign Trade, and of modern developments of Combination and Monopoly. But the ground which we have already traversed is, in some respects, the most difficult of the whole province of economics; and it commands, and, so to speak, holds the key of, that which lies yet before us.

a reduction in the hours of labour whether by a given percentage, or down to a given minimum, would diminish output in unequal proportions in different trades, and would therefore disturb relative values and relative wages; and these disturbances would be aggravated by competition from a foreign country that was not passing through the same changes. If however the hours of labour could be reduced, not on any rigid plan, but in such a way as not to disturb relative values, the change would not directly affect the course of foreign trade whether other nations adopted the movement or not. For if it just, but only just, paid to export cutlery and import in exchange for sewing machines before the change; then after the change, relative values remaining unaltered, it will still pay, and only just pay, to do the same. International agreements are therefore likely to go less far, than at first sight appears, towards lessening the evils of a general diminution of output.

APPENDIX

OF MATHEMATICAL NOTES.

NOTE I. (p. 154). Let h be a pleasure of which the probability is p, and which will occur, if at all, at time t; let r be the rate of interest per unit which must be added to present pleasures before comparing them to future, and let $R=1+r$; then the present value of the pleasure is phR^{-t}.

If ϖ be the probability that an element of happiness Δh a person will derive from the possession of, say, a piano in the element of time Δt, then the present value of the piano to him is $\int_0^t \varpi R^{-t} \frac{dh}{dt} dt$. If we are to include all the happiness that results from the event at whatever distance of time we must take $t=\infty$. If the source of pleasure is in Bentham's phrase "impure," $\frac{dh}{dt}$ will probably be negative for some values of t; and of course the whole value of the integral may be negative.

NOTE II. (p. 155). The law of diminution of marginal utility may be expressed thus:—If u be the total utility of an amount x of a commodity to a given person at a given time, then $\frac{du}{dx}$ measures its marginal utility; and, subject to the qualifications mentioned in the text, $\frac{d^2u}{dx^2}$ is always negative.

NOTE III. (p. 156). If m is the amount of money or general purchasing power at a person's disposal at any time, and μ represents its total utility to him, then $\frac{d\mu}{dm}$ represents the marginal utility of money to him.

If p is the price which he is just willing to pay for an amount x of the commodity which gives him a total pleasure u, then

$$\frac{d\mu}{dm}\Delta p=\Delta u; \text{ and } \frac{d\mu}{dm}\frac{dp}{dx}=\frac{du}{dx}.$$

If p' is the price which he is just willing to pay for an amount x' of another commodity, which affords him a total pleasure u'; then

$$\frac{d\mu}{dm} \cdot \frac{dp'}{dx'} = \frac{du'}{dx'};$$

and therefore

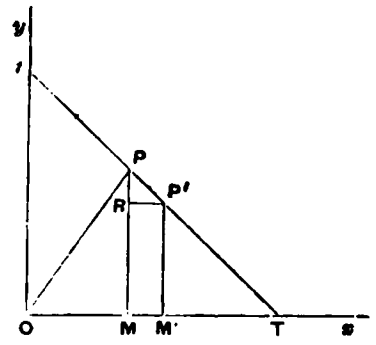
$$\frac{dp}{dx} : \frac{dp'}{dx'} = \frac{du}{dx} : \frac{du'}{dx'}.$$

(Compare Jevons's chapter on the *Theory of Exchange*, p. 151.)

Every increase in his means diminishes the marginal utility of money to him; that is, $\frac{d^2\mu}{dm^2}$ is always negative.

Therefore, $\frac{du}{dx}$, the marginal utility to him of an amount x of a commodity remaining unchanged, an increase in his means increases $\frac{du}{dx} \div \frac{d\mu}{dm}$; i.e. it increases $\frac{dp}{dx}$, that is, the rate at which he is willing to pay for further supplies of it. Treating u as variable, that is to say, allowing for possible variations in the person's liking for the commodity in question, we may regard $\frac{dp}{dx}$ as a function of m, u, and x; and then we have $\frac{d^2p}{dm\,dx}$ always positive. Of course $\frac{d^2p}{du\,dx}$ is always positive.

Note IV. (p. 163). Let P, P' be consecutive points on the demand curve; let PRM be drawn perpendicular to Ox, and let PP' cut Ox and Oy in T and t respectively; so that $P'R$ is that increment in the amount demanded which corresponds to a diminution PR in the price per unit of the commodity.



Then the elasticity of demand at P is measured by

$$\frac{P'R}{OM} \div \frac{PR}{PM}, \text{ i.e. by } \frac{P'R}{PR} \times \frac{PM}{OM};$$

$$\text{i.e. by } \frac{TM}{PM} \times \frac{PM}{OM},$$

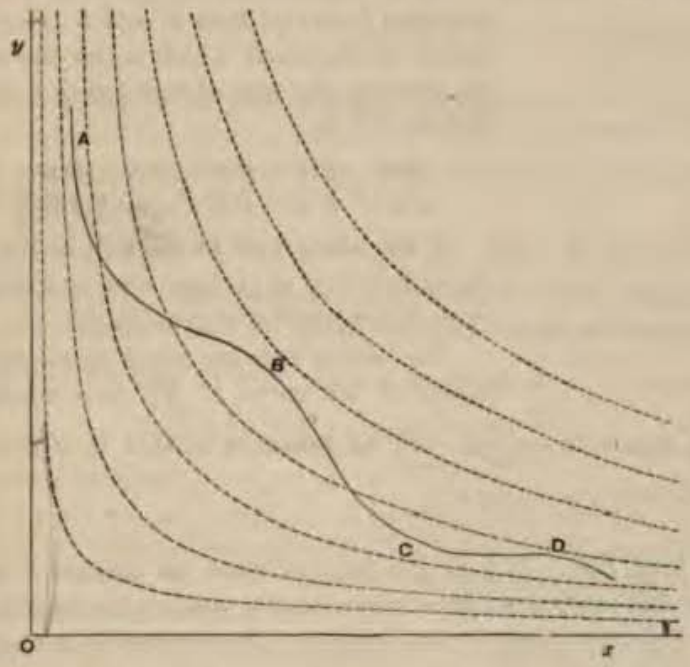
$$\text{i.e. by } \frac{TM}{OM} \text{ or by } \frac{PT}{Pt}.$$

When the distance between P and P' is diminished indefinitely, PP' becomes the tangent; and thus the proposition is proved.

It is obvious *a priori* that the measure of elasticity cannot be altered by altering relatively to one another the scales on which distances parallel to Ox and Oy are measured. But a geometrical proof of this result can be got easily by the method of projections: while analytically it is clear that $-\frac{y}{x}\frac{dx}{dy}$, which is the analytical expression for the measure of elasticity, does not change its value if the curve $y=f(x)$ be drawn to new scales, so that its equation becomes $qy=f(px)$; where p and q are constants.

If the elasticity of demand be equal to unity for all prices of the commodity, any fall in price will cause a proportionate increase in the amount bought, and therefore will make no change in the total outlay which purchasers make for the commodity. Such a demand may therefore be called a "Constant Outlay demand."

The curve which represents it, a "Constant Outlay curve," as it may be called, is of course a rectangular hyperbola with Ox and Oy as asymptotes; and a series of such curves are represented by the dotted curves in the following figure.



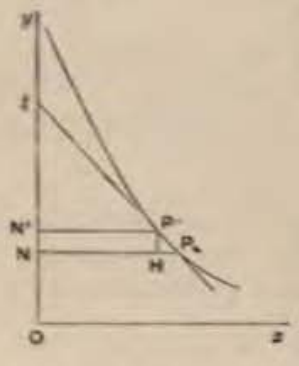
There is some advantage in accustoming the eye to the shape of these curves; so that when looking at a demand curve one can tell at once whether it is inclined to the vertical at any point at a greater or less angle than the part of a Constant Outlay curve, which would pass through that point. Greater accuracy may be obtained by tracing Constant Outlay curves on thin paper, and then laying the paper over the demand-curve. By this means it may, for instance, be seen at once that the demand-curve in the figure represents at each of the points A, B, C and D an elasticity about equal to one: between A and B, and again between C and D, it represents an elasticity greater than one; while between B and C it represents an elasticity less than one. It will be found that practice of this kind makes it easy to detect the nature of the assumptions with regard to the character of the demand for a commodity, which are implicitly made in drawing a demand curve of any particular shape; and is a safeguard against the unconscious introduction of improbable assumptions.

The general equation to demand-curves representing at every point an elasticity equal to n is

$$\frac{dx}{x}+n\frac{dy}{y}=0, \text{ i.e, } xy^n=C.$$

It is worth noting that in such a curve $\frac{dx}{dy} = -\frac{C}{y^{n+1}}$; that is, the proportion in which the amount demanded increases in consequence of a small fall in the price varies inversely as the $(n+1)^{th}$ power of the price. In the case of the Constant Outlay curves it varies inversely as the square of the price; or, which is the same thing in this case, directly as the square of the amount.

Note V. (p. 171). The lapse of time being measured downwards along Oy; and the amounts, of which record is being made, being measured by distances from Oy; then P' and P being adjacent points on the curve which traces the growth of the amount, the rate of increase in a small unit of time $N'N$ is



$$\frac{PH}{P'N'} = \frac{PH}{P'H} \cdot \frac{P'H}{P'N'} = \frac{PN}{Nt} \cdot \frac{P'H}{PN} = \frac{P'H}{Nt}.$$

If we take a year as the unit of time we find the annual rate of increase represented by the inverse of the number of years in Nt.

The rate of increase would be constant for all points of the curve if NT were constant and always $= a$, that is, if $-x\frac{dy}{dx} = a$ for all values of x; that is, if the equation to the curve were $y = -a \log x$.

Note VI. (p. 178). If y be the price at which an amount x of a commodity can find purchasers in a given market, and $y = f(x)$ be the equation to the demand-curve, then the total utility of the commodity is measured by $\int_0^a f(x)\,dx$, where a is the amount consumed.

If however an amount b of the commodity is necessary for existence, $f(x)$ will be infinite, or at least indefinitely great, for values of x less than b. We must therefore take life for granted, and estimate separately the total utility of that part of the supply of the commodity which is in excess of absolute necessaries: it is of course $\int_b^a f(x)\,dx$.

If there are several commodities which will satisfy the same imperative want, as e.g. water and milk, either of which will quench thirst, we shall find that, under the ordinary conditions of life, no great error is introduced by adopting the simple plan of assuming that the necessary supply comes exclusively from that one which is cheapest.

It should be noted that, in the discussion of Consumers' Rent, we assume that the marginal utility of money to the individual purchaser is the same throughout. Strictly speaking we ought to take account of the fact that if he spent less on coals, the marginal utility of money to him would be less than it is, and he would get an element of Consumers' Rent from buying other things at prices which now yield him no such Rent. But these changes of Consumers' Rent (being of the second order of smallness) may be neg-

lected, on the assumption, which underlies our whole reasoning, that his expenditure on any one thing, as, for instance, coals, is only a small part of his whole expenditure. (Compare Book v. Ch. II. § 3.)

NOTE VII. (p. 180). Thus if a_1, a_2, a_3... be the amounts consumed of the several commodities of which b_1, b_2, b_3... are necessary for existence, if $y=f_1(x)$, $y=f_2(x)$, $y=f_3(x)$... be the equations to their demand-curves and if we may neglect all inequalities in the distribution of wealth, then the total utility of his wealth, subsistence being taken for granted, is represented by

$$\Sigma \int_b^a f(x)\, dx.$$

Of course all but a few members of the series b_1, b_2... are equal to zero. It must be remembered that this estimate is likely to omit all those elements of wealth which are not habitually sold, and which have therefore no demand-curve. Their utility must be allowed for separately.

NOTE VIII. (p. 180). If y be the happiness which a person derives from an income x; and if, after Bernouilli, we assume that the increased happiness which he derives from the addition of one per cent. to his income is the same whatever his income be, we have

$$x\frac{dy}{dx}=K, \text{ and } \therefore\ y=K\log x+C$$

when K and C are constants.

Let a be the income sufficient to purchase the necessaries of life, so defined that the total pleasure derived from life with an income less than a is a negative quantity; then our equation becomes $y=K\log\frac{x}{a}$. Of course both K and a vary with the temperament, the health, the habits, and the social surroundings of each individual. Laplace calls x *fortune physique* and y *fortune morale*.

Bernouilli himself seems to have thought of x and a as representing certain amounts of property rather than of income; but we cannot estimate the property necessary for life without some understanding as to the length of time during which it is to support life, that is, without really treating it as income.

Perhaps the guess which has attracted most attention after Bernouilli's is Cramer's suggestion that the pleasure afforded by wealth may be taken to vary as the square root of its amount.

NOTE IX. (p. 180). The argument that fair gambling is an economic blunder is generally based on Bernouilli's or some other definite hypothesis. But it requires no further assumption than that firstly the pleasure of gambling may be neglected, and secondly $\phi''(x)$ is negative for all values of x, where $\phi(x)$ is the pleasure derived from wealth equal to x.

For suppose that the chance that a particular event will happen is p, and a man makes a fair bet of py against $(1-p)\ y$ that it will happen. By so doing he changes his expectation of happiness from

$$\phi(x) \text{ to } p\phi\{x+(1-p)\ y\}+(1-p)\,\phi(x-py);$$

and this when expanded by Taylor's Theorem becomes

$$\phi(x)+\tfrac{1}{2}p(1-p)^2\phi''\{x+\theta(1-p)y\}+\tfrac{1}{2}p^2(1-p)\phi'''(x+\Theta py);$$

and, since $\phi''(x)$ is negative for all values of x, this is less than $\phi(x)$.

It is true that this loss of probable happiness need not be greater than the pleasure derived from the excitement of gambling, and we are then thrown back upon the induction that pleasures of gambling are in Bentham's phrase "impure," since experience shows that they are likely to engender a restless, feverish character, unsuited for steady work as well as for the higher and more solid pleasures of life.

NOTE X. (p. 188). Following on the same lines as in Note II., let us take v to represent the disutility or discommodity of an amount of labour l, then $\frac{dv}{dl}$ measures the marginal disutility of labour; and, subject to the qualifications mentioned in the text, $\frac{d^2v}{dl^2}$ is always positive.

Let m be the amount of money or general purchasing power at a person's disposal, μ its total utility to him, and therefore $\frac{d\mu}{dm}$ its marginal utility. Thus if Δw be the wages that must be paid him to induce him to do labour Δl, then

$$\Delta w\frac{d\mu}{dm}=\Delta v, \text{ and } \frac{dw}{dl}\cdot\frac{d\mu}{dm}=\frac{dv}{dl}.$$

If we assume that his dislike to labour is not a fixed, but a fluctuating quantity, we may regard $\frac{dw}{dl}$ as a function of m, v, and l; and then both $\frac{d^2w}{dm\,dl}$, $\frac{d^2w}{dv\,dl}$ are always positive.

NOTE XI. (p. 307). If $f(t)$ be the average length of the giraffe's neck at time t, then the supposition in the passage to which this note refers, is that the rate of increase of the average neck increases (within certain limits) with every increase in the length of the neck, and that therefore $f''(t)$ is positive. Now we know by Taylor's Theorem that

$$f(t+h)=f(t)+hf'(t)+\frac{h^2}{1.2}f''(t+\theta h);$$

and if h be large, so that h^2 is very large, then $f(t+h)$ will be much greater than $f(t)$ even though $f'(t)$ be small and $f''(t)$ is never large. There is more than a superficial connection between the advance made by the applications of the differential calculus to physics at the end of the last century and the beginning of this, and the rise of the theory of evolution. In sociology as well as in biology we are learning to watch the accumulated effects of forces which though weak at first get greater strength from the growth of their own effects; and the universal form, of which every such fact is a special embodiment, is Taylor's Theorem; or, if the action of more than one cause at a time is to be taken account of, the corresponding expression of a function of several variables.

NOTE XII. (p. 390). If as in Note X., v be the discommodity of the amount of labour which a person has to exert in order to obtain an amount x of a commodity from which he derives a pleasure u, then the pleasure of having further supplies will be equal to the pain of getting them when $\frac{du}{dx}=\frac{dv}{dx}$.

If the pain of labour be regarded as a negative pleasure; and we write $U\equiv -v$; then $\frac{du}{dx}+\frac{dU}{dx}=0$, i.e. $u+U=$ a maximum at the point at which his labour ceases.

NOTE XIII. (p. 433). Let the factors of production of a commodity A be a_1, a_2 &c.; and let their supply equations be $y=\phi_1(x)$, $y=\phi_2(x)$, &c. Let the number of units of them required for the production of x units of A be m_1x, m_2x, ... respectively; where m_1, m_2... are generally not constants but functions of x. Then the supply equation of A is

$$y=\Phi(x)=\phi_1(m_1x)+\phi_2(m_2x)+\ldots\equiv\Sigma\{\phi(mx)\}.$$

Let $y=F(x)$ be the demand equation for the finished commodity, then the derived demand equation for a_r the r^{th} factor is

$$y=F(x)-\{\Phi(x)-\phi_r(m_rx)\}.$$

But in this equation y is the price, not of one unit of the factor but of m_r units; and to get an equation expressed in terms of fixed units let η be the price of one unit, and let $\xi=m_rx$, then $\eta=\frac{1}{m_r}.y$ and the equation becomes

$$\eta=f_r(\xi)=\frac{1}{m_r}\left[F\left(\frac{1}{m_r}\xi\right)-\left\{\Phi\left(\frac{1}{m_r}\xi\right)-\phi_r(\xi)\right\}\right].$$

If m_r is a function of x say $=\psi_r(x)$; then x must be determined in terms of ξ by the equation $\xi=x\psi_r(x)$, so that m_r can be written $\chi_r(\xi)$; substituting this we have η expressed as a function of ξ. The supply equation for a_r is simply $\eta=\phi_r(\xi)$.

NOTE XIV. (p. 434). Let the demand equation for knives be

$$y=F(x) \quad \ldots\ldots(1),$$

let the supply equation for knives be $y=\Phi(x)$ ..... (2),

let that for handles be $y=\phi_1(x)$ ..... (3),

and that for blades be $y=\phi_2(x)$ ..... (4),

then the demand equation for handles is

$$y\equiv f_1(x)=F(x)-\phi_2(x) \quad \ldots\ldots(5).$$

The measure of elasticity for (5) is $-\left\{\frac{xf_1'(x)}{f_1(x)}\right\}^{-1}$, that is

$$-\left\{\frac{xF'(x)-x\phi_2'(x)}{f_1(x)}\right\}^{-1};$$

that is

$$\left\{-\frac{xF'(x)}{F(x)}\cdot\frac{F(x)}{f_1(x)}+\frac{x\phi_2'(x)}{f_1(x)}\right\}^{-1}.$$

This will be the smaller the more fully the following conditions are satisfied: (i) that $-\frac{xF'(x)}{F(x)}$, which is necessarily positive, be large, i.e. that

the elasticity of the demand for knives be small; (ii) that $\phi_2'(x)$ be positive and large, i.e. that the supply price for blades should increase rapidly with an increase, and diminish rapidly with a diminution of the amount supplied; and (iii) that $\frac{F(x)}{f_1(x)}$ should be large; that is, that the price of handles should be but a small part of the price of knives.

A similar, but more complex inquiry, leads to substantially the same results, when the units of the factors of production are not fixed, but vary as in the preceding note.

NOTE XV. (p. 435). Suppose that m bushels of hops are used in making a gallon of ale of a certain kind, of which in equilibrium x' gallons are sold at a price $y'=F(x')$. Let m be changed into $m+\Delta m$; and, as a result, when x' gallons are still offered for sale let them find purchasers at a price $y'+\Delta y'$; then $\frac{\Delta y'}{\Delta m}$ represents the marginal demand price for hops: if it is greater than their supply price, it will be to the interest of the brewers to put more hops into the ale. Or, to put the case more generally, let $y=F(x, m)$, $y=\Phi(x, m)$ be the demand and supply equations for beer, x being the number of gallons and m the number of bushels of hops in each gallon. Then $F(x, m)-\Phi(x, m)=$excess of demand over supply price. In equilibrium this is of course zero: but if it were possible to make it a positive sum by varying m the change would be effected: therefore (assuming that there is no perceptible change in the expense of making the beer, other than what results from the increased amount of hops) $\frac{dF}{dm}=\frac{d\Phi}{dm}$, the one representing the marginal demand price, and the other the marginal supply price of hops; and the two are equal.

This method is of course capable of being extended to cases in which there are concurrent variations in two or more factors of production.

NOTE XVI. (p. 436). Suppose that a thing, whether a finished commodity or a factor of production, is distributed between two uses, so that of the total amount x the part devoted to the first use is x_1 and that devoted to the second use is x_2. Let $y=\phi(x)$ be the total supply equation; $y=f_1(x_1)$ and $y=f_2(x_2)$ be the demand equations for its first and second uses. Then in equilibrium the three unknowns x, x_1 and x_2 are determined by the three equations $f_1(x_1)=f_2(x_2)=\phi(x)$; $x_1+x_2=x$.

Next suppose that it is desired to obtain separately the relations of demand and supply of the thing in its first use, on the supposition that, whatever perturbations there may be in its first use, its demand and supply for the second use remains in equilibrium; i.e. that its demand price for the second use is equal to its supply price for the total amount that is actually produced, i. e. $f_2(x_2)=\phi(x_1+x_2)$ always. From this equation we can determine x_2 in terms of x_1, and therefore x in terms of x_1; and therefore we can write $\phi(x)=\psi(x_1)$. Thus the supply equation for the thing in its first use becomes $y=\psi(x_1)$; and this with the already known equation $y=f_1(x_1)$ gives the relations required.

NOTE XVII. (p. 437). Let a_1, a_2... be joint products, m_1x, m_2x... of them severally being produced as the result of x units of their joint process of production, for which the supply equation is $y=\phi(x)$. Let $y=f_1(x)$, $y=f_2(x)$... be their respective demand equations. Then in equilibrium

$$m_1 f_1(m_1x)+m_2 f_2(m_2x)+\ldots\ldots=\phi(x).$$

Let x' be the value of x determined from this equation; then $f_1(m_1x')$, $f_2(m_2x')$, &c. are the equilibrium prices of the several joint products. Of course m_1, m_2, are expressed if necessary in terms of x'.

NOTE XVIII. (p. 438). This case corresponds, *mutatis mutandis*, to that discussed in Note XV. If in equilibrium x' oxen annually are supplied and sold at a price $y'=\phi(x')$; and each ox yields m units of beef: and if breeders find that by modifying the breeding and feeding of oxen they can increase their meat-yielding properties to the extent of Δm units of beef (the hides and other joint products being, on the balance, unaltered), and that the extra expense of doing this is $\Delta y'$, then $\frac{\Delta y'}{\Delta m}$ represents the marginal supply price of beef: if this price were less than the selling price, it would be to the interest of breeders to make the change.

NOTE XIX. (p. 439). Let a_1, a_2... be things which are fitted to subserve exactly the same function. Let their units be so chosen that a unit of any one of them is equivalent to a unit of any others. Let their several supply equations be $y_1=\phi_1(x_1)$, $y_2=\phi_2(x_2)$...

In these equations let the variable be changed, and let them be written $x_1=\psi_1(y_1)$, $x_2=\psi_2(y_2)$... Let $y=f(x)$ be the demand equation for the service for which all of them are fitted. Then in equilibrium x and y are determined by the equations $y=f(x)$; $x=x_1+x_2+\ldots$, $y_1=y_2=\ldots=y$. (The equations must be such that none of the quantities x_1, x_2... can have a negative value. When y_1 has fallen to a certain level x_1 becomes zero; and for lower values x_1 remains zero; it does not become negative.) As was observed in the text it must be assumed that the supply equations all conform to the law of Diminishing Return; i.e. that $\phi_1'(x)$, $\phi_2'(x)$... are always positive.

NOTE XX. (p. 440). We may now take a bird's-eye view of the problems of Joint Demand, Composite Demand, Joint Supply and Composite Supply when they all arise together, with the object of making sure that our abstract theory has just as many equations as it has unknowns, neither more nor less.

First in a problem of joint demand we may suppose that there are n commodities A_1, $A_2 \ldots A_n$. Let A_1 have a_1 factors of production, let A_2 have a_2 factors and so on, so that the total number of factors of production is $\Sigma_1^n a_r$: let this $=m$.

First suppose that all the factors are different, so that there is no composite demand; that each factor has a separate process of production, so that there are no joint products; and lastly that no two factors subserve the same use, so that there is no composite supply. We then have $2n+2m$ unknowns, viz. the amounts and prices of n commodities and of m factors;

and to determine them we have $2m+2n$ equations viz.:—(i) n demand equations each of which connects the price and amount of a commodity; (ii) n equations each of which equates the supply price for any amount of a commodity to the sum of the prices of corresponding amounts of its factors; (iii) m supply equations each of which connects the price of a factor with its amount; and lastly, m equations each of which states the amount of a factor which is used in the production of a given amount of the commodity.

Next let us take account not only of joint demand but also of composite demand. Let β_1 of the factors of production consist of the same thing, say carpenters' work of a certain efficiency; in other words let carpenters' work be one of the factors of production of β_1 of the n commodities $A_1, A_2 \ldots$. Then since the carpenters' work is taken to have the same price in whatever production it is used, there is only one price for each of these factors of production, and the number of unknowns is diminished by $\beta_1 - 1$; also the number of supply equations is diminished by $\beta_1 - 1$; and so on for other cases.

Next let us in addition take account of joint supply. Let γ_1 of the things used in producing the commodities be joint products of one and the same process. Then the number of unknowns is not altered; but the number of supply equations is reduced by $(\gamma_1 - 1)$; this deficiency is however made up by a new set of $(\gamma_1 - 1)$ equations connecting the amounts of these joint products; and so on.

Lastly let one of the things used have a composite supply made up from δ_1 rival sources, then reserving the old supply equations for the first of these rivals, we have $2(\delta_1 - 1)$ additional unknowns, consisting of the prices and amounts of the remaining $(\delta_1 - 1)$ rivals. These are covered by $(\delta_1 - 1)$ supply equations for the rivals, and $(\delta_1 - 1)$ equations between the prices of the δ_1 rivals.

Thus however complex the problem may become, we can see that it is theoretically determinate because the number of unknowns is always exactly equal to the number of the equations which we obtain.

NOTE XXI. (p. 459). If $y = f_1(x)$, $y = f_2(x)$ be the equations to the demand and supply curves respectively, the amount of production which affords the Maximum Monopoly Revenue is found by making $\{xf_1(x) - xf_2(x)\}$ a maximum; that is, it is the root, or one of the roots of the equation

$$\frac{d}{dx}\{xf_1(x) - xf_2(x)\} = 0.$$

The supply function is represented here by $f_2(x)$ instead of as before by $\phi(x)$, partly to emphasize the fact that supply price does not mean exactly the same thing here as it did in the previous Notes, partly to fall in with that system of numbering the curves which is wanted to prevent confusion now that their number is being increased.

NOTE XXII. (p. 461). If a tax be imposed of which the aggregate amount is $F(x)$, then in order to find the value of x which makes the Monopoly Revenue a maximum, we have

$$\frac{d}{dx}\{xf_1(x) - xf_2(x) - F(x)\} = 0;$$

and it is clear that if $F(x)$ is either constant, as in the case of a license duty, or varies as $xf_1(x) - xf_2(x)$, as in the case of an income-tax, this equation has the same roots as it would have if $F(x)$ were zero.

Treating the problems geometrically, we notice that, if a fixed burden be imposed on a monopoly sufficient to make the monopoly revenue curve fall altogether below Ox, and q' be the point on the new curve vertically below L in fig. (36), then the new curve at q' will touch one of a series of rectangular hyperbolas drawn with yO produced downwards for one asymptote and Ox for the other. These curves may be called *constant* loss curves.

Again a tax proportionate to the Monopoly Revenue and amounting to m times it (m being less than one) will substitute for QQ' a curve the length of each ordinate of which is $(1-m) \times$ the length of the corresponding point on QQ'; i.e. the point which has the same abscissa. The tangents to corresponding points on the old and new position of QQ' will cut Ox in the same point, as is obvious by the method of projections. But it is a law of rectangular hyperbolas which have the same asymptotes that, if a line be drawn parallel to one asymptote to cut the hyperbolas, and tangents be drawn to them at its points of intersection, they will all cut the other asymptote in the same point. Therefore if q_2' be the point on the new position of QQ' corresponding to q_2, and if we call G the point in which the common tangent to the hyperbola and QQ' cuts Ox, Gq_2' will be a tangent to the hyperbola which passes through q_2'; that is, q_2' is a point of maximum revenue on the new curve.

The geometrical and analytical methods of this Note can be applied to cases in which the tax is levied on the produce of the monopoly such as are discussed in the latter part of § 4 in the text.

Note XXIII. (p. 468). These results have easy geometrical proofs by Newton's method, and by the use of well-known properties of the rectangular hyperbola. They may also be proved analytically. As before let $y=f_1(x)$, be the equation to the demand curve; $y=f_2(x)$ that to the supply curve; and that to the Monopoly Revenue curve is $y=f_3(x)$, where $f_3(x)=f_1(x)-f_2(x)$ the equation to the Consumers' Rent curve $y=f_4(x)$; where

$$f_4(x)=\frac{1}{x}\int_0^x f_1(\alpha)\,d\alpha - f_1(x).$$

That to the Total Benefit curve is $y=f_5(x)$; where

$$f_5(x)=f_3(x)+f_4x=\frac{1}{x}\int_0^x f_1(\alpha)\,d\alpha - f_2(x);$$

a result which may of course be obtained directly. That to the Compromise Benefit Curve is $y=f_6(x)$; where $f_6(x)=f_3(x)+nf_4(x)$; Consumers' Rent being reckoned in by the monopolist at n times its actual value.

To find OL (fig. 38), that is, the amount the sale of which will afford the maximum Monopoly Revenue, we have the equation

$$\frac{d}{dx}\{xf_3(x)\}=0;\ \text{i.e. } f_1(x)-f_2(x)=x\{f_2'(x)-f_1'(x)\};$$

the left-hand side of this equation is necessarily positive, and therefore so is the right-hand side which shews, what is otherwise obvious, that if Lq_3 be

produced to cut the supply and demand curves in q_2 and q_1 respectively, the supply curve at q_2 (if inclined negatively) must make a greater angle with the vertical than is made by the demand curve at q_1.

To find OW, that is, the amount the sale of which will afford the maximum Total Benefit, we have

$$\frac{d}{dx}\{xf_3(x)\}=0\,;\ \text{i.e. } f_1(x)-f_2(x)-xf_2'(x)=0.$$

To find OY, that is, the amount the sale of which will afford the maximum Compromise Benefit, we have

$$\frac{d}{dx}\{xf_6(x)\}=0;\ \text{i.e. } \frac{d}{dx}\{\overline{1-n}xf_1(x)-xf_2(x)+n\int_0^x f_1(\alpha)\,d\alpha\}=0;$$

$$\text{i.e. } \overline{1-n}xf_1'(x)+f_1(x)-f_2(x)-xf_2'(x)=0.$$

If $OL=c$, the condition that OY should be greater than ON is that $\frac{d}{dx}\{xf_6(x)\}$ be positive when c is written for x in it; i.e. since $\frac{d}{dx}\{xf_3(x)\}=0$ when $x=c$, that $\frac{d}{dx}\{xf_4(x)\}$ be positive when $x=c$; i.e. that $f_1'(c)$ be negative. But this condition is satisfied whatever be the value of c. This proves the first of the two results given at the end of Book v. Chap. VIII. § 7; and the proof of the second is similar. (The wording of these results and of their proofs tacitly assumes that there is only one point of maximum Monopoly Revenue.)

We may add one more result to those in the text.

Let us write $OH=a$, then the condition that OY should be greater than OH is that $\frac{d}{dx}\{nf_6(x)\}$ be positive when a is written for x: that is, since $f_1(a)=f_2(a)$, that $\overline{1-n}f_1'(a)-f_2'(a)$ be positive. Now $f_1'(a)$ is always negative, and therefore the condition becomes that $f_2'(x)$ be negative, i.e. that the supply obey the Law of Increasing Return and that $\tan\phi$ be numerically greater than $\overline{1-n}\tan\theta$, where θ and ϕ are the angles which tangents at A the demand and supply curves respectively make with Ox. When $n=1$, the sole condition is that $\tan\phi$ be negative: that is OW is greater than OH provided the supply curve at A be inclined negatively. In other words, if the monopolist regards the interest of consumers as identical with his own, he will carry his production further than the point at which the supply price (in the special sense in which we are here using the term) is equal to the demand price, provided the supply in the neighbourhood of that point obeys the Law of Increasing Return: but he will carry it less far if the supply obeys the Law of Diminishing Return.

NOTE XXIV. (p. 515). Using the same notation as in Note I., let us take our starting point as regards time at the date of beginning to build the house and let T' be the time occupied in building it. Then the present value of the pleasures, which he expects to derive from the house, is

$$H=\int_{T'}^{T}\varpi R^{-t}\frac{dh}{dt}\,dt.$$

Let Δv be the element of effort that will be incurred by him in the interval of building the house in time Δt, then the present value of the aggregate of efforts is

$$V=\int_0^{T'} R^{-t}\frac{dv}{dt}\,dt.$$

If there is any uncertainty as to the labour that will be required, every possible element must be counted in, multiplied by the probability, $\frac{\varpi'}{1}$, of its being required; and then V becomes $\int_0^{T'} \varpi' R^{-t}\frac{dv}{dt}\,dt$.

If we transfer the starting point to the date of the completion of the house, we have

$$H=\int_0^{T_1} \varpi R^{-t}\frac{dh}{dt}\,dt \quad \text{and} \quad V=\int_{-T}^{0} \varpi' R^{t}\frac{dv}{dt}\,dt,$$

where $T_1=T-T'$; and this starting point, though perhaps the less natural from the mathematical point of view, is the more natural from the point of view of ordinary business. Adopting it, we see V as the aggregate of estimated pains incurred, each bearing on its back as it were the accumulated burden of the waitings between the time of its being incurred and the time when it begins to bear fruit.

Jevons's discussion of the investment of capital is somewhat injured by the unnecessary assumption that the function representing it is an expression of the first order; which is the more remarkable as he had himself, when describing Gossen's work, pointed out the objections to the plan followed by him (and Whewell) of substituting straight lines for the multiform curves that represent the true characters of the variations of economic quantities.

Note XXV. (p. 515). If α, α', α''... be the several amounts of different kinds of labour, as for instance, wood cutting, stone carrying, earth digging, &c., that would be used in building the house on any given plan; and β, β', β'', &c., the several amounts of accommodation of different kinds which the house would afford on these several plans. Then V, β, β', β'' are all functions of α, α', α''..., and H being a function of β, β', β''... is a function also of α, α', α''.... We have then

$$\frac{dV}{d\alpha}=\frac{dH}{d\beta}\frac{d\beta}{d\alpha}=\frac{dH}{d\beta'}\frac{d\beta'}{d\alpha}=\frac{dH}{d\beta''}\frac{d\beta''}{d\alpha}=-$$

$$\frac{dV}{d\alpha'}=\frac{dH}{d\beta}\frac{d\beta}{d\alpha'}=\frac{dH}{d\beta'}\frac{d\beta'}{d\alpha'}=\frac{dH}{d\beta''}\frac{d\beta''}{d\alpha'}=\ldots.$$

Note XXVI. (p. 593). Let Δx be the probable amount of the production of wealth in time Δt, and Δy the probable amount of his consumption. Then the discounted value of his future services is $\int_0^{T} R^{-t}\left(\frac{dx}{dt}-\frac{dy}{dt}\right)dt$; where T is the maximum possible duration of his life. On the like plan the past cost of his production is $\int_{-T'}^{0} R^{-t}\left(\frac{dy}{dt}-\frac{dx}{dt}\right)dt$, where T' is the date of his birth. If we assume that he would neither add to nor take from the material well-being of a country if he stayed there all his life, we have

$\int_{T}^{-T'} R^{-t}\left(\frac{dx}{dt}-\frac{dy}{dt}\right)dt=0$; or, taking the starting point of time at his birth, and $l=T'+T$=the maximum possible length of his life, this takes the simpler form, $\int_{0}^{l} R^{-t}\left(\frac{dx}{dt}-\frac{dy}{dt}\right)dt=0$; which is in fact the assumption implicitly made by many writers on the subject.

In saying that Δx is the probable amount of his production in time Δt, we have put shortly what may be more accurately expressed thus:—let $p_1, p_2 \ldots$, be the chances that in time Δt he will produce elements of wealth $\Delta_1 x$, $\Delta_2 x \ldots$, where $p_1+p_2+\ldots$ cannot exceed unity: then

$$\Delta x = p_1\Delta_1 x + p_2\Delta_2 x + \ldots .$$

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