

PREFACE TO THE FIRST EDITION.

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 Exchange¹.

¹ In the *Economics of Industry* published by my wife and myself in 1870 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

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 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

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.

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 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

¹ The term "marginal" increment I borrowed from von Thünen's *Der isolirte Staat*, 1826-63, 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.

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.

September, 1890.

PREFACE TO THE EIGHTH EDITION.

THIS edition is a reprint of the seventh, which was almost a reprint of the sixth, the only changes being in small matters of detail: the Preface is almost the same as in the seventh edition.

It is now thirty years since the first edition of this volume implied a promise that a second volume, completing the treatise, would appear within a reasonable time. But I had laid my plan on too large a scale; and its scope widened, especially on the realistic side, with every pulse of that Industrial Revolution of the present generation, which has far outdone the changes of a century ago, in both rapidity and breadth of movement. So ere long I was compelled to abandon my hope of completing the work in two volumes. My subsequent plans were changed more than once; partly by the course of events, partly by my other engagements, and the decline of my strength.

Industry and Trade, published in 1919, is in effect a continuation of the present volume. A third (on Trade, Finance and the Industrial Future) is far advanced. The three volumes are designed to deal with all the chief problems of economics, so far as the writer's power extends.

The present volume therefore remains as a general introduction to the study of economic science; similar in some respects, though not in all, to that of volumes on *Foundations (Grundlagen)*, which Roscher and some other economists have put in the forefront of groups of semi-independent volumes on economics. It avoids such special topics as currency and the organization of markets: and, in regard to such matters as the

structure of industry, employment, and the problem of wages, it deals mainly with normal conditions.

Economic evolution is gradual. Its progress is sometimes arrested or reversed by political catastrophes: but its forward movements are never sudden; for even in the Western world and in Japan it is based on habit, partly conscious, partly unconscious. And though an inventor, or an organizer, or a financier of genius may seem to have modified the economic structure of a people almost at a stroke; yet that part of his influence, which has not been merely superficial and transitory, is found on inquiry to have done little more than bring to a head a broad constructive movement which had long been in preparation. Those manifestations of nature which occur most frequently, and are so orderly that they can be closely watched and narrowly studied, are the basis of economic as of most other scientific work; while those which are spasmodic, infrequent, and difficult of observation, are commonly reserved for special examination at a later stage: and the motto *Natura non facit saltum* is specially appropriate to a volume on Economic Foundations.

An illustration of this contrast may be taken from the distribution of the study of large businesses between the present volume and that on *Industry and Trade*. When any branch of industry offers an open field for new firms which rise to the first rank, and perhaps after a time decay, the normal cost of production in it can be estimated with reference to "a representative firm," which enjoys a fair share both of those internal economies which belong to a well-organized individual business, and of those general or external economies which arise out of the collective organization of the district as a whole. A study of such a firm belongs properly to a volume on Foundations. So also does a study of the principles on which a firmly established monopoly, in the hands of a Government department or a large railway, regulates its prices with main reference indeed

to its own revenue; but also with more or less consideration for the wellbeing of its customers.

But normal action falls into the background, when Trusts are striving for the mastery of a large market; when communities of interest are being made and unmade; and, above all, when the policy of any particular establishment is likely to be governed, not with a single eye to its own business success, but in subordination to some large stock-exchange manoeuvre, or some campaign for the control of markets. Such matters cannot be fitly discussed in a volume on Foundations: they belong to a volume dealing with some part of the Superstructure.

The Mecca of the economist lies in economic biology rather than in economic dynamics. But biological conceptions are more complex than those of mechanics; a volume on Foundations must therefore give a relatively large place to mechanical analogies; and frequent use is made of the term "equilibrium," which suggests something of statical analogy. This fact, combined with the predominant attention paid in the present volume to the normal conditions of life in the modern age, has suggested the notion that its central idea is "statical," rather than "dynamical." But in fact it is concerned throughout with the forces that cause movement: and its key-note is that, of dynamics, rather than statics.

The forces to be dealt with are however so numerous, that it is best to take a few at a time; and to work out a number of partial solutions as auxiliaries to our main study. Thus we begin by isolating the primary relations of supply, demand and price in regard to a particular commodity. We reduce to inaction all other forces by the phrase "other things being equal": we do not suppose that they are inert, but for the time we ignore their activity. This scientific device is a great deal older than science: it is the method by which, consciously or unconsciously, sensible men have dealt from time immemorial with every difficult problem of ordinary life.

In the second stage more forces are released from the hypothetical slumber that had been imposed on them: changes in the conditions of demand for and supply of particular groups of commodities come into play; and their complex mutual interactions begin to be observed. Gradually the area of the dynamical problem becomes larger; the area covered by provisional statical assumptions becomes smaller; and at last is reached the great central problem of the Distribution of the National Dividend among a vast number of different agents of production. Meanwhile the dynamical principle of "Substitution" is seen ever at work, causing the demand for, and the supply of, any one set of agents of production to be influenced through indirect channels by the movements of demand and supply in relation to other agents, even though situated in far remote fields of industry.

The main concern of economics is thus with human beings who are impelled, for good and evil, to change and progress. Fragmentary statical hypotheses are used as temporary auxiliaries to dynamical—or rather biological—conceptions; but the central idea of economics, even when its Foundations alone are under discussion, must be that of living force and movement.

There have been stages in social history in which the special features of the income yielded by the ownership of land have dominated human relations: and perhaps they may again assert a pre-eminence. But in the present age, the opening out of new countries, aided by low transport charges on land and sea, has almost suspended the tendency to Diminishing Return, in that sense in which the term was used by Malthus and Ricardo, when the English labourers' weekly wages were often less than the price of half a bushel of good wheat. And yet, if the growth of population should continue for very long even at a quarter of its present rate, the aggregate rental values of land for all its uses (assumed to be as free as now from restraint

by public authority) may again exceed the aggregate of incomes derived from all other forms of material property; even though that may then embody twenty times as much labour as now.

Increasing stress has been laid in successive editions up to the present on these facts; and also on the correlated fact that in every branch of production and trade there is a margin, up to which an increased application of any agent will be profitable under given conditions; but beyond which its further application will yield a diminishing return unless there be some increase of demand accompanied by an appropriate increase of other agents of production needed to co-operate with it. And a similar increasing stress has been laid on the complementary fact that this notion of a margin is not uniform and absolute: it varies with the conditions of the problem in hand, and in particular with the period of time to which reference is being made. The rules are universal that, (1) marginal costs do not govern price; (2) it is only at the margin that the action of those forces which do govern price can be made to stand out in clear light; and (3) the margin, which must be studied in reference to long periods and enduring results, differs in character as well as in extent from that which must be studied in reference to short periods and to passing fluctuations.

Variations in the nature of marginal costs are indeed largely responsible for the well-known fact that those effects of an economic cause, which are not easily traced, are frequently more important than, and in the opposite direction to, those which lie on the surface and attract the eye of the casual observer. This is one of those fundamental difficulties which have underlain and troubled the economic analysis of past times; its full significance is perhaps not yet generally recognized, and much more work may need to be done before it is fully mastered.

The new analysis is endeavouring gradually and tentatively to bring over into economics, as far as the widely different

nature of the material will allow, those methods of the science of small increments (commonly called the differential calculus) to which man owes directly or indirectly the greater part of the control that he has obtained in recent times over physical nature. It is still in its infancy; it has no dogmas, and no standard of orthodoxy. It has not yet had time to obtain a perfectly settled terminology; and some differences as to the best use of terms and other subordinate matters are but a sign of healthy life. In fact however there is a remarkable harmony and agreement on essentials among those who are working constructively by the new method; and especially among such of them as have served an apprenticeship in the simpler and more definite, and therefore more advanced, problems of physics. Ere another generation has passed, its dominion over that limited but important field of economic inquiry to which it is appropriate will probably be no longer in dispute.

My wife has aided and advised me at every stage of successive editions of this volume. Each one of them owes a great deal to her suggestions, her care, and her judgment. Dr Keynes and Mr L. L. Price read through the proofs of the first edition and helped me greatly; and Mr A. W. Flux also has done much for me. Among the many who have helped me on special points, in some cases in regard to more than one edition, I would specially mention Professors Ashley, Cannan, Edgeworth, Haverfield, Pigou and Taussig; Dr Berry, Mr C. R. Fay, and the late Professor Sidgwick.

BALLIOL CROFT,
6, MADINGLEY ROAD, CAMBRIDGE.
October 1920.

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- ✓ Appendix K. Certain kinds of surplus. The aggregate real cost of any branch of production is less than in proportion to its marginal costs in several ways; to each of which there corresponds what may be regarded as a surplus from some special point of view. But only those kinds of surplus, which have been discussed in the text, appear to call for careful study.
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APPENDIX A.

THE GROWTH OF FREE INDUSTRY AND ENTERPRISE.

§ 1. THE last section of the first chapter of Book I. describes the purpose of Appendices A and B; and may be taken as an introduction to them. APP. A, 1.

Although the proximate causes of the chief events in history are to be found in the actions of individuals, yet most of the conditions which have made these events possible are traceable to the influence of inherited institutions and race qualities and of physical nature. Race qualities themselves are, however, mainly 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.

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 they show a strange uniformity of general character, amid great variety of detail. 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

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

Savage life
is ruled by
custom and
impulse.

APP. A, 1. 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. This is partly because early history is meagre, and tells us but little of the particular events and of the influences of strong individual characters by which the course of national progress has been guided and controlled, hastened onwards or turned backwards. But it is chiefly because in this stage of his progress man's power of contending with nature is small, and 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 spots¹.

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; some surplus over them is required to support that mental effort in which progress takes its rise. And therefore nearly 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, and 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 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 all that their subjects had to teach, and have gone beyond them. 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.

Ruling castes have given their energies to war and politics, not to 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 weakness². In colder

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 Ökonomie*, Hegel's *Philosophy of History*, and Buckle's *History of Civilization*. Compare also Aristotle's *Politics*, and Montesquieu's *Esprit des Loix*.

² Montesquieu says quaintly (Bk. xiv. ch. ii.) that the superiority of strength

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 it¹. 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 lose their strength; fewer and fewer of 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.

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.

APP. A, I.
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In an early civilization movement is slow, but there is movement.

The greater part of custom is doubtless but a crystallized form of 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.

¹ This may have to be modified a little, but only a little, if F. 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.

APP. A, 2.
 Custom is never altogether on the side of the strong,

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

Divided ownership strengthens the force of custom and resists changes.

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 injury¹.

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 ploughshares to none 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. By such means 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. Thus the influence of economic causes is pressed below the surface, where they work surely and slowly. They take generations instead of years to produce their effect: their action is so subtle as easily to escape observation altogether, and 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 times².

§ 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 traditional fiction if not in fact.

It is true that in an early stage of civilization few would have had

¹ Comp. Bagehot's *Physics and Politics*, also the writings of Herbert Spencer and Maine.

² 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 régime 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.

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 any one 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 many operations were generally 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 time¹. 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 details². 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

¹ The Teutonic Mark system is indeed now known to have been much less general than some historians had supposed. But where it was fully developed 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 generally several scattered acre strips. 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 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.

² Compare the Duke of Argyll's account of Runrig cultivation in *Unsettled Foundations of Society*, ch. IX.

APP. A. 3.

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 they knew and cared so little for those social aspects of economic problems which are of so great interest to us.

The older civilizations had been chiefly inland.

§ 3. The homes of most of the earlier civilizations had been in great river-basins, whose well-watered plains were seldom visited by famine; for in a climate in which heat is never lacking, the fertility of the soil varies almost directly with its moisture: the rivers also 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.

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

It was left for the genial sympathies and the fresh spirit of the Greeks to breathe in the full breath of freedom over the sea: and to absorb into their own free lives the best thoughts and the highest art of the Old World. Their numberless settlements in Asia Minor, Magna Græcia, and in Hellas proper, 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 in-

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 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 known¹.

APP. A, 3.
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expensive, and yet did not quickly relax their strength.

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; and they knew little or nothing of those economic problems, which are of absorbing interest to our own age².

Modern in many respects, they did not anticipate the economic problems which have grown up with the sense of the dignity of labour.

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 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.

And yet a lesson might have been learnt from the 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.

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

¹ Compare Neumann and Partsch, *Physikalische Geographie von Griechenland*, ch. 1., and Grote's *History of Greece*, Part II. ch. 1.

² See above, p. 4. Thus even Plato says:—"Nature has made neither boot-makers nor blacksmiths; such occupations degrade the people engaged in them, miserable mercenaries excluded by their very position from political rights." (*Laws*, XII.) And Aristotle continues:—"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." (*Politics*, VII. 9; see also III. 5.) These passages give the key-note of Greek thought with regard to business. But as there were few independent fortunes in ancient Greece, many of her best thinkers were compelled to take some share in business.

APP. A, 4. 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. A genial climate slowly relaxed their physical energies; they were without that safeguard to strength of character which comes from resolute and steadfast persistence in hard work; and at last they sank into frivolity.

The strength of character of the Romans fitted them for business, but they generally preferred war and politics.

Roman economic conditions were in some respects modern in form;

§ 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 Athenians, to the youthful joy with which they gave free play to all their faculties and developed their own idiosyncrasy, the Romans showed the firm will, the iron resolution, the absorption in definite serious aims of the mature man¹.

Singularly free from the restraints of custom, they shaped their own lives for themselves with a deliberate choice that had never been known before. They were strong and daring, steady of purpose and abundant in resource, orderly in habit, and clear-sighted in judgment; and thus, though they preferred war and politics, they had in constant use all the faculties required for business enterprise.

Nor was the principle of association inactive. Trade guilds had some vigour in spite of the paucity of artisans who were free. Those methods of combined action for business purposes, and of production on a large scale by slave labour in factories, in which Greece had been the pupil of the East, gained new strength when imported into Rome. The faculties and the temper of the Romans fitted them especially well for the management of joint-stock companies; and a comparatively small number of very wealthy men, with no middle class, were able, with the aid of trained slaves and freedmen, to undertake large contracts by land and by sea at home and abroad. They made capital hateful; but they made it powerful and efficient; they developed the

¹ This fundamental opposition between the Greek and Roman tempers was made clear by Hegel in his *Philosophy of History*. "Of the Greeks in the first genuine form of their freedom we may assert that they had no conscience; the habit of living for their country without further analysis or reflection was the principle dominant among them...Subjectivity plunged the Greek world into ruin"; and the harmonious poetry of the Greeks made way for "the prose life of the Romans," which was full of subjectivity, and "a hard dry contemplation of certain voluntary aims." A generous, though discriminating, tribute to the services which Hegel indirectly rendered to Historical Economics is given by Roscher, *Gesch. der Nat. Ök. in Deutschland*, § 188. Compare also the chapters on Religion in Mommsen's *History*, which seem to have been much influenced by Hegel; also Kautz, *Entwicklung der National-Economie*, Bk. I.

appliances of money-lending with great energy; and partly in consequence of the unity of the imperial power, and the wide extent of the Roman language, there was in some important respects more freedom of commerce and of movement throughout the civilized world in the days of the Roman Empire than even now.

APP. A, 4

When, then, we recollect how great a centre of wealth Rome was; how monstrous the fortunes of individual Romans (and they have only recently been surpassed); and how vast the scale of her military and civil affairs, of the provision needed for them and of the machinery of her traffic; we cannot wonder that many writers have thought they found much resemblance between her economic problems and our own. But the resemblance is superficial and illusory. It extends only to forms, and not to the living spirit of national life. It does not extend to the recognition of the worth of the life of the common people, which in our own time is giving to economic science its highest interest¹.

In ancient Rome industry and commerce lacked the vital strength which they have attained in more recent times. Her imports were won by the sword; they were not bought with the products of skilled work in which the citizens took a worthy pride, as were those of Venice or Florence or Bruges. Traffic and industry alike were pursued almost with a sole eye to the money gains to be derived from them; and the tone of business life was degraded by the public disdain which showed itself in the "legal and practically effective restriction"² of the Senators from all forms of business except those connected with the land. The Equites found their richest gains in farming the taxes, in the plunder of provinces, and, in later times, in the personal favour of the Emperors, and did not cherish that spirit of probity and thorough work which are needed for the making of a great national

but not
at all in
substance.

¹ See above, ch. 1. § 2. The misunderstanding is in some measure attributable to the influence of the generally acute and well-balanced Roacher. He took a special delight in pointing out analogies between ancient and modern problems; and though he also pointed out differences, yet the general influence of his writings tended to mislead. (His position is well criticized by Knies, *Politische Ökonomie vom geschichtlichen Standpunkte*: especially p. 391 of the second edition.)

² Friedländer, *Sittengeschichte Roms*, p. 225. Mommsen goes so far as to say (*History*, Book IV. ch. xi.):—"Of trades and manufactures there is nothing to be said, except that the Italian nation in this respect persevered in an inactivity bordering on barbarism....The only brilliant side of Roman private economics was money dealing and commerce." Many passages in Cairnes' *Slave Power* read like modern versions of Mommsen's *History*. Even in the towns the lot of the poor free Roman resembled that of the "mean white" of the Southern Slave States. *Latifundia perdidit Italiam*; but they were farms like those of the Southern States, not of England. The weakness of free labour at Rome is shown in Liebenau's *Geschichte des römischen Vereinswesens*.

APP. A, 4. trade; and at length private enterprise was stifled by the ever-growing shadow of the State¹.

But they founded the modern law of property. The Stoic philosophy and the cosmopolitan experience of the later Roman lawyers

But though the Romans contributed but little directly to the progress of economic science, yet indirectly they exerted a profound influence over it, for good and evil, by laying the foundations of modern 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. 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 controlled 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 lie in concealment at the foundation of all particular codes. This search for the universal, 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 local 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

led them gradually to enlarge the sphere of contract.

¹ One aspect of this is described by Schmoller in his short but excellent account of the Trading Companies of Antiquity. After showing how trading groups of which all the members belong to one family may thrive even among primitive peoples, he argues (*Jahrbuch für Gesetzgebung*, xvi. pp. 740—2) that no form of business association of the modern type could flourish long in such conditions as those of ancient Rome unless it had some exceptional privileges or advantages as the *Societas Publicanorum* had. The reason why we moderns succeed in bringing and keeping many people "under the same hat" to work together, which Antiquity failed in doing, "is to be sought exclusively in the higher level of intellectual and moral strength, and the greater possibility now than then of binding together men's egoistic commercial energies by the bonds of social sympathy." See also Deloume, *Les Manieurs d'Argent à Rome*; an article on *State control of industry in the fourth century* by W. A. Brown in the *Political Science Quarterly*, Vol. II.; Blanqui's *History of Political Economy*, chs. v. and vi.; and Ingram's *History*, ch. II.

out, and he could deal with it as he pleased. 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.

APP. A, 5.

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 pursuit was reconciled with those failures which necessarily accompany all social work. 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.

But a new spirit was needed.

§ 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 fidelity¹ 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

¹ 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 watch-word, as Freedom is the first."

APP. A, § 6.
Our debt to the Saracens.

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 civilization¹.

Later on civilization moved northwards and westwards,

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

and the old contest between town and country revived.

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.

Without the telegraph and printing press, freedom in a large country was confined to the aristocracy.

§ 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, were often wanting in 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 bold enterprise would gradually have arisen to shake off the bonds of tradition and custom.

But self-government by the

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

¹ A brilliant eulogy of their work is given by Draper, *Intellectual Development of Europe*, ch. XIII.

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, and sometimes did hear, from the leaders of 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 on occasion 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.

APP. A, 7.
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people was possible in the towns.

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 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 a small minority of the nation till a few years ago; and the representative system itself is only of recent date.

And it is now for the first time possible in a large country.

§ 7. In the Middle Ages 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 trade and industry, and did not despise them. And though the wealthier citizens were sometimes able to set up a close government in which the workers had no part, they seldom retained their power long: the great body of the inhabitants frequently had the full rights of 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 the Gilds were often exclusive, and their trade-regulations ultimately retarded progress, yet they did excellent work before this deadening influence had shown itself¹.

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

¹ What is true of the great free towns, that were practically autonomous, is

APP. A, 8.

The citizens gained culture without losing energy; without neglecting their business, they learnt to take an intelligent interest in many things besides their business. They led the way in the fine arts, and they were not backward in those of war. They took pride in magnificent expenditure for public purposes; and they took equal pride in a careful husbanding of the public resources, in clear and clean State budgets, and in systems of taxes levied equitably and based on sound business principles. Thus they led the way towards modern industrial civilization; and if they had gone on their course undisturbed, and retained their first love of liberty and social equality, they would probably long ago have worked out the solutions of many social and 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 power of the countries by which they were surrounded; and indeed when they had obtained dominion over their neighbours, their own rule had often been harsh and oppressive, so that their ultimate overthrow by the country was in some degree the result of a just retribution. They have suffered for their wrong-doings; but the fruit of their good work remains, and is the source of much that is best in the social and economic traditions that our age has inherited from its predecessors.

Chivalry
did not
protect
the poor.

§ 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 educated the common people in habits of discipline and order. But it concealed under forms of some outward beauty much cruelty and uncleanness, physical and moral. The practices of chivalry combined extreme deference to women in public with domestic tyranny: elaborate rules of courtesy towards combatants of the knightly order were maintained by the side of cruelty and extortion in dealing with the lower classes. The ruling classes were expected to discharge their obligations towards one another with frankness and generosity¹. They had ideals of life which were not devoid of nobility;

true in a less degree of the so-called free boroughs of England. Their constitutions were even more various than the origins of their liberties; but it now seems probable that they were generally more democratic and less oligarchic than was at one time supposed. See especially Gross, *The Guild Merchant*, ch. VII.

¹ But treachery was common in Italian cities, and was not very rare in northern castles. 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. As a painter rightly fills his canvas with the noblest faces he can find, and keeps as much in the background as possible what is ignoble, 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. But when we want to take stock of the world's progress, we must reckon the evil.

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 indeed they were often kind and even affectionate towards those retainers with whom they lived in daily contact.

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 trade¹.

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 wellbeing of the people; and it sometimes even led them in open resistance to the tyranny of their rulers².

of past times as it really was. To be more than just to our ancestors is to be less than just to the best hopes of our race.

¹ We are perhaps apt to lay too much stress on the condemnation by the Church of "usury" and some kinds of trade. There was then very little scope for lending 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. 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 put difficulties in the way of those who bought up large quantities of goods in order to sell them retail at a profit. 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. Compare the excellent chapter on the Canonist Doctrine in Ashley's *History* and the notice of it by Hewins in the *Economic Review*, Vol. IV.

² Indirectly it aided progress by promoting the Crusades; of which Ingram well says (*History*, ch. II.) that they "produced a powerful economic effect by transferring in many cases the possessions of the feudal chiefs to the industrial classes, whilst by bringing different nations and races into contact, by enlarging the horizon and widening the conceptions of the populations, as well as by affording a special stimulus to navigation, they tended to give a new activity to international trade."

AFF. A, 8.

but
hindered
it in
others.

But, on the other hand, 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 the 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 force of discipline and resolution; and they used their combined strength 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.

Overthrow
of the
cities.

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 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 out short before they had had time to outgrow their early mistakes.

The in-
vention of
printing,
the Refor-
mation,
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. And 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. APP. A, 9.

§ 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. Spain and Portugal could not hold their own for long against the more sustained energy and the more generous spirit of the northern people. The first benefit of the maritime discoveries went to the Spanish Peninsula.

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 Greece proper; so the Austro-Spanish Empire subdued the Belgian Netherlands, but only intensified the patriotism and energy of the Dutch Netherlands and England. But soon moved further on, to Holland;

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 at a critical time in her history she was deprived of the aid she might reasonably have expected from Protestant England; and though from 1688 onwards that aid was liberally given, her bravest and most generous sons had then 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.

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

APP. A, 10. 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.

The character of Englishmen.

§ 10. 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 towns of England had been less distinguished than those of other lands; but she assimilated them 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 adventure 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

The English 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 misfortune¹.

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.

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 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 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 everyone to steer his course in life according to his own free choice. For good and 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, in the sixteenth century, resulted from the depreciation of silver, the debasement of coin, the appropriation of the revenues of the monasteries to the purposes of court extravagance; and lastly by the extension of sheep-farming, which set many workers adrift from their old homes, and lowered the real incomes and altered the mode of life of those who

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 far below him; and were worse off in almost every respect than they are now.

APP. A, 10.
nation they showed signs of their modern faculty for organized action.

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

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

APP. A, 11. remained. 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 which the barons and landed gentry had kept together. 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 of land had at their own command for working it¹.

These causes tended to establish 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. Free enterprise grew fast and fiercely, it was one-sided in its action and cruel to the poor. But it remains true that the English large farm, arable and pastoral, worked with borrowed capital, was the forerunner of the English factory, in the same way as English archery was the forerunner of the skill of the English artisan².

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

§ 11. 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; 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 progress³. But the notion was new to the world, it was bare and naked,

¹ 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 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.

² This parallelism is further developed in Book VI; see especially ch. ix. § 5.

³ 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 yet overgrown with pleasant instincts; and even in kindly natures individuality showed itself with a hard sharpness of outline, while the coarser natures became self-conscious and egotistic. Among the Puritans especially, the eagerness to give logical definiteness and precision to their religious creed was an absorbing passion, hostile to all 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 art¹.

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. It needed to be purified and softened by much tribulation; it needed 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. It intensified the affections of the family, the richest and fullest of earthly feelings: perhaps 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 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.

§ 12. England's industrial and commercial characteristics 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

not the whole truth, that we must live and die alone, alone with God." Westcott's *Social Aspects of Christianity*, p. 121. Comp. also Hegel's *Philosophy of History*, Part iv. section iii. ch. 2.

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 intensity of the feelings which were engendered by the Reformation has 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 slightly 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.

APP. A, 12.

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

The seriousness of the character of the English

people was intensified through her attracting refugee artisans from the Continent.

APP. A, 13. the English, and who had been led by that character to study 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 them¹. 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 adopted a severe view of life; they took little delight in amusements that interrupted work, and they had 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, house-room and other requisites for a comfortable existence in it, are of a specially expensive character.

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 everyone 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 everyone to adjust his conduct as he has decided 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.

English free enterprise naturally tended towards division of labour,

§ 13. Freedom of industry and enterprise, so far as its action reaches, tends to cause everyone to seek that employment of his labour and capital in which he can turn them to best advantage; and this again leads him to try to obtain a special skill and facility in some particular task, by which he may earn the means of purchasing what he himself wants. And hence 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.

¹ 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.

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 and for evil as the chief fact in the form of modern civilization, the kernel of the modern economic problem.

The most vital changes hitherto introduced into industrial life, especially centre around this growth of business *Undertakers*¹. We have already seen how the undertaker made his appearance 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 Europe².

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

¹ This term, which has the authority of Adam Smith and is habitually used on the Continent, seems to be the best to indicate those who take the risks and the management of business as their share in the work of organized industry.

² 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, etc. 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.

APP. A, 13. great development of England's foreign trade; in fact traces of it are to be found in the woollen manufacture in the fifteenth century. 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.

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

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

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 advantageous 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. APP. A, 14.

As time went on, the progress of mechanical invention caused the workers to be gathered more and more into small factories in the neighbourhood of water power; and when steam came to be substituted for water power, then into larger factories in great towns. Thus the great undertakers who bore the chief risks of manufacturing, without directly managing and superintending, began to give way to wealthy employers, who conducted the whole business of manufacturing on a large scale. The new factories attracted the attention of the most careless observer; and this last movement was not liable to be overlooked by those who were not actually engaged in the trade, as the preceding movement had been¹.

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 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 home of the workers².

But gradually the undertakers collected into factories large bodies of workers. Henceforth manufacturing labour was hired wholesale.

§ 14. The new movement, both in its earlier and later forms, has tended constantly to relax the bonds that used to bind nearly everyone to live in the parish in which he was born; and it developed free markets for labour, which invited people to come and take their chance of finding employment. And in consequence of this change the causes that determine the value of labour began to take a new character. Up to the eighteenth century manufacturing labour had been hired, as a rule, retail; though a large and fluid labour class, which could be hired

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. See for further details a brilliant chapter by Professor Clapham in the *Cambridge Modern History*, Vol. X.

² See Held's *Soziale Geschichte Englands*, Bk. II. ch. III.

APP. A, 15. wholesale, had played a considerable part in the industrial history of particular places on the Continent and in England before then. In that century the rule was reversed, at least for England; and the price of labour ceased to be dominated by custom, or by bargaining in small markets. During the last hundred years it has ever more and more been determined by the circumstances of supply and demand over a large area—a town, a country, or the whole world.

The new organization was accompanied by great evils; many of which were due to other causes.

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 first part of last century therefore saw free enterprise establishing itself in England under favourable circumstances, its evils being intensified and its beneficial influences being hindered by external misfortunes.

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

§ 15. 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 free¹. 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

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

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 Gross' *Gild Merchant*, Vol. I. pp. 43 and 52.

instinctive results 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.

APP. A, 15.
their time, but were unfitted for the modern era of rapid change.

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

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 had then 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 by 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, and he was urged on to work and to let his family work during long hours, and under unhealthy conditions. This reacted on the efficiency of the working population, and therefore on the net value of their work, and therefore it kept down their wages. The employment of very young children for long hours was no new thing: it had been common in Norwich and elsewhere even in the seventeenth century. But the moral and physical misery and disease caused by excessive work under bad conditions reached their highest point among the factory population in the first quarter of the century. They diminished slowly during the second quarter, and more rapidly since then.

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

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

APP. A, 16.

But the new system had saved England from French armies, and the workmen accepted it.

After the workmen had recognized the folly of attempts to revive the old rules regulating industry, there was no 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.

Change in the policy of Trades-Unions.

And even trades-unions, which were then beginning that brilliant though chequered career which has been more full of interest and instruction than almost anything else in English history, passed into the phase of seeking little from authority except to be left alone. They had learnt by bitter experience 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.

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

§ 16. It has been left for our own generation to perceive all the evils which arose from the suddenness of this 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 us 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 disasters¹.

¹ 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

We must judge ourselves by a severer standard. For, though England has recently been called on to struggle once more for national existence, her powers of production have been immensely increased; free trade 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 house-room 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, and 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.

APP. A, 16.
We
now have
greater
means and
must aim
higher.

In particular 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 ultimate greater 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 children and the mothers of 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 new
restraints
on freedom
are chiefly
in the
interests of
women and
children.

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.

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

Projects for great and sudden changes are now, as ever, foredoomed

money can always be used so as to save them. A general who at a critical time sacrifices lives in order to protect material, the loss of which would cause the loss of many men, is held to have acted rightly, though no one would openly defend a sacrifice of soldiers' lives in order to save a few army stores in time of peace.

APP. A, 17.

And we are gradually moving towards forms of collective action, higher than the old, because based on strong self-disciplined individuality.

to fail, and to cause reaction; we cannot 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; and 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.

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, even more than it did in the early ages before the sway of individualism had begun. But unselfishness then will be the offspring of deliberate will; and, though aided by instinct, individual freedom will then develop itself in collective freedom:—a happy contrast to the old order of life, in which individual slavery to custom caused collective slavery and stagnation, broken only by the caprice of despotism or the caprice of revolution.

America is throwing much light on certain economic problems.

§ 17. We have been looking at this movement from the British point of view. But other nations are hastening in the same direction. America faces new practical difficulties with such intrepidity and directness that she has already attained leadership in some economic affairs; she supplies many of the most instructive instances of the latest economic tendencies of the age, such as the development of speculation and trade combination in every form, and she will probably before long take the chief part in pioneering the way for the rest of the world.

Australia.

Australia also shows signs of vigour, and she has indeed some advantage over the United States in the greater homogeneity of her people. For, though the Australians—and nearly the same may be said of the Canadians—come from many lands, and thus stimulate one another to thought and enterprise by the variety of their experiences and their habits of thought, yet nearly all of them belong to one race: and the development of social institutions can proceed in some respects more easily, and faster than if they had to be adjusted to the capacities, the temperaments, the tastes, and the wants of peoples who have little affinity with one another.

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 mistakes¹.

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 but recently been fully developed in Germany; while the German people have a great faculty of obedience. They thus differ from the English; whose strength of will makes them capable of thorough discipline when strong occasion arises 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 beginning to be seen in full development there. In consequence the problems of the economic functions of Government have been studied in Germany with great care, and with results that may be very instructive to English-speaking people; provided they recollect that the arrangements best suited for the German character are perhaps not quite the best for them; since they could not, if they would, rival the Germans in their steadfast docility, and in their easy contentment with inexpensive kinds of food, clothing, house-room and amusements.

APP. A, 17.

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

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. 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 many 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 Appendix B. Here 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; we have next to inquire how the form of that problem has been fashioned by the progress of events and the personal peculiarities of great thinkers.

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 Ökonomie*, II. 5), the growth of trade and the improvement of the means of communication are making the developments of different nations tend to synchronize.

APPENDIX B¹.

✓ THE GROWTH OF ECONOMIC SCIENCE.

APP. B, I.

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.

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, and 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. Its immediate concern was generally with the public revenue, and the effects and yield of taxes; and here the statesmen of the free cities and the great empires alike found their economic problems more urgent and more difficult, as trade became broader and war more expensive.

• Influence of trade with 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 regulating trade. One chief object of their concern had been the 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. But the voyages of Vasco da Gama and Columbus raised commercial questions from a secondary to a dominating position among the nations of Western Europe. Theories with regard to the

¹ See I. 2. 5.

importance of the precious metals, and the best means of obtaining supplies of them, became in some measure the arbiters of public policy, dictating peace and war, and determining alliances that issued in the rise and fall of nations: and, at times they largely influenced the migration of peoples over the face of the globe. APP. B, 1.

Regulations as to trade in the precious metals were but one group of a vast body of ordinances, which undertook, with varying degrees of minuteness and severity, 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 age. And this strength told on the side of trade gilda, of local authorities and of national Governments when they set themselves to cope with the restless tendency to change that sprang directly or indirectly 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, the so-called Mercantile system became prominent; and regulation was pursued with a masterful rigour that had not been known before. The early regulation 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. But the spirit of regulation and restriction which is found in their systems belonged to the age; many of the changes which they set themselves to bring about were in the direction of the freedom of enterprise. In particular they argued, in opposition to those who wished to prohibit absolutely the exportation of the precious metals, 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. By thus 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 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. The broadening movement did go on till, in the latter half of the eighteenth century, the time was ripe for the doctrine that the wellbeing 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 way¹. The mercantile theory tended to loosen the fetters of trade.

¹ Meanwhile "Camereristic" studies were developing the scientific analysis of public business, at first on the financial side alone; but from 1750 onwards increasingly in regard to the material, as distinguished from the human, conditions of the wealth of nations.

APP. B, 2.

The Physiocrats insisted that restriction is artificial and liberty is natural.

§ 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 cornerstone of their policy was obedience to Nature².

They were the first to proclaim the doctrine of free trade as a broad principle of action, going in this respect beyond even such advanced English writers as Sir Dudley North; 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 of their time, but which has been banished after a long struggle from the physical sciences. They confused the ethical principle of conformity to Nature, which is expressed in the imperative mood, and prescribes 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 but little direct value.

They gave to economics

But its indirect influence on the present position of economics has been very great. For, firstly, the clearness and logical consistency

¹ Cantillon's essay *Sur la Nature de Commerce*, written in 1755, and covering a wide range, has indeed some claims to be called systematic. It is acute and in some respects ahead of his time; though it now appears that he had been anticipated on several important points by Nicholas Barbon, who wrote sixty years earlier. Kautz was the first to recognize the importance of Cantillon's work; and Jevons declared he was the true founder of Political Economy. For a well-balanced estimate of his place in economics, see an article by Higgs in the *Quarterly Journal of Economics*, Vol. VI.

² In the two preceding centuries writers on economic questions 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 Locke anticipated much of the work 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 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; this name being derived from the title of Dupont de Nemours' *Physiocratie ou Constitution Naturelle du Gouvernement le plus avantageux 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.

of their arguments have caused them to exercise 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; 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 life¹.

§ 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 Steuart, 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 finer does his genius appear, the broader his knowledge and the more well-balanced his judgment.

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 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. And since he was the first to write a treatise on wealth in all its chief social respects, he might on this ground alone have a claim to be regarded as the founder of modern economics².

¹ Even the generous Vauban (writing in 1717) had to apologize for his interest in the wellbeing of the people, arguing that to enrich them was the only way to enrich the king—*Faibles paysans, pauvre Royaume, pauvre Royaume, pauvre Roi*. On the other hand Locke, who exercised a great influence over Adam Smith, anticipated the ardent philanthropy of the Physiocrats as he did also some of their peculiar economic opinions. 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.

² Compare the short but weighty statement of Adam Smith's claims to supremacy in Wagner's *Grundlegung*, Ed. 3, pp. 6, etc.; also Hasbach's *Unterrückungen über Adam Smith* (in which the notice of the influence of Dutch thought on both English and French is of special interest); and L. L. Price's *Adam Smith, and his*

APP. B, 3.

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; though, on examination, he is always found to be working his way towards the truth¹.

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. While giving many instances of the ways in which self-interest may lead the individual trader to act injuriously to the community, he contended 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 *Smithianism*².

but his chief work was to find in the theory of value a common centre that gave

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, on the one side measuring the desire of purchasers to

relations to Recent Economics in the *Economic Journal*, Vol. III. Cunningham, *History*, § 306, argues forcibly that "his great achievement lay in isolating the conception of national wealth, while previous writers had treated it in conscious subordination to national power"; but perhaps each half of this contrast is drawn with too sharp outlines. Cannan in his Introduction to the *Lectures of Adam Smith*, shows the importance of Hutcheson's influence on him.

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 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 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: and the old use of the term *Smithianism* is becoming discredited. See for instance a long list of such conflicts quoted from the *Wealth of Nations* by Knoke, *Politische Ökonomie*, ch. III. § 3. See also Feilbogen, *Smith und Turgot*, and Zeyn, *Smith und der Eigennutz*.

obtain wealth, and on the other the efforts and sacrifices (or "Real Cost of Production") undergone by its producers¹.

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. In this he and the economists, who went before and came after him, were not inventing a new academic notion; they were merely giving definiteness and precision to notions that are familiar in common life. In fact the ordinary man, without analytical habits of mind, is apt to regard money as measuring motive and happiness more closely and exactly than it actually does; and this is partly because he does not think out the manner in which the measurement is effected. Economic language seems technical and less real than that of common life. But in truth it is more real, because it is more careful and takes more account of differences and difficulties².

§ 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

¹ The relations of Value to Cost of Production had been indicated by the Physiocrats and by many earlier writers, among whom may be mentioned Harris, Cantillon, Locke, Barbon, Petty; and even Hobbes who hinted, though vaguely, that plenty depends on labour and abstinence applied by man to working up and accumulating the gifts of nature by land and by sea—*proventus terræ et aquæ, labor et parsimonia*.

² Adam Smith saw clearly 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. And as Hume said, the *Wealth of Nations* "is so much illustrated with curious facts that it must take the public attention." This is exactly what Adam Smith did: he did not very often prove a conclusion by detailed induction. 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 that they were dealing with problems of the real world, and not with abstraction; and his book, though not well arranged, is a model of method. The supremacy of Adam Smith and of Ricardo, each in his own way, is well set forth by Prof. Nicholson in *The Cambridge Modern History*, Vol. X. ch. XXIV.

APP. B, 4.
unity to
economic
science.

The study
of facts.

APP. B, 4.

Bentham's opposition to customary restrictions on trade for which no valid reason could be given, greatly influenced English economists early in last century.

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 on the whole the most influential of the immediate successors of Adam Smith was Bentham. He wrote little on economics himself, but he went far towards setting the tone of the rising school of English economists at the beginning of the nineteenth century. He was an uncompromising logician, and averse to all restrictions and regulations for which no clear reason could be given; and his pitiless demands that they should justify their existence received support from the circumstances of the age. England had won her unique position in the world by her quickness in adapting herself to every new economic movement; while by their adherence to old-fashioned ways the nations of Central Europe had been prevented from turning to account their great natural resources. The business men of England therefore were inclined 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 everyone was always on the alert to find out what course would best promote his own interest, and was free and quick to follow it¹.

There is then some justice in the charges frequently brought against the English economists of the beginning of last 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, and 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.

¹ Another way in which he influenced the young economists around him was through his passionate desire for security. He was indeed 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.

§ 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.

APP. B, 5.
Many of whom had a bias towards rapid generalization.

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 neglecting to take much account of any human motives except the desire for wealth; and the brilliant school of deductive reasoning, which Ricardo led, was here on safe ground¹.

Their work was excellent so long as they treated of money

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 pure deductive reasoning. 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 foreign trade,

During all this time the study of economic facts was not neglected in England. The statistical studies of Petty, Arthur Young, Eden, and others were ably continued by Tooke, McCulloch and Porter. And

nor did they neglect statistics

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 his aversion to inductions and his delight in abstract reasonings are 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; and Ricardo's 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. 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 hypothesis it is possible to cover a great variety of practical questions. He wrote originally not for publication, but to clear away the doubts of himself, and perhaps a few friends, on points of special difficulty. They, like himself, were men of affairs with a vast knowledge of the facts of life: and this is one cause of his preferring broad principles, consonant with general experience, to particular inductions from select groups of facts. But his knowledge was one-sided: he understood the merchant, but not the working man. His sympathies however were with the working man; and he supported his friend Hume in the defence of the right of the working men to combine for mutual aid in the same way as their employers were able to do. Compare Appendix I below.

APP. B, 6. 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 eighteenth century and the beginning of the nineteenth, may fairly be regarded as the origin of systematic historical and statistical studies in economics.

and inquiries into the condition of the working classes.

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 sometimes to argue as though all mankind had the same habits of mind as city men.

§ 6. For the sake of simplicity of argument, Ricardo and his followers often spoke as though they regarded man as a constant quantity, and they never gave themselves enough trouble to study his variations. The people whom they knew most intimately were city men; and they sometimes expressed themselves so carelessly as almost to imply 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 that deserved study; but they seemed to regard such differences 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 speak of labour as a commodity without staying to throw themselves into the point of view of the workman; and without dwelling upon the allowances to be made 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 is to be

found in real life: and they laid down laws with regard to profits and wages that did not really hold even for England in their own time¹.

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.

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. The economists therefore did not trouble themselves to examine carefully any of their doctrines, and least of all their speculations as to human nature².

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

¹ As regards wages there were even some logical errors in the conclusions they deduced from their own premisses. These errors when traced back to their origin are little more than careless modes of expression. But they were seized upon eagerly by those who cared little for the scientific study of economics, and cared only to quote its doctrines for the purpose of keeping the working classes in their place; and perhaps no other great school of thinkers has ever suffered so much from the way in which its "parasites" (to use a term that is commonly applied to them in Germany), professing to simplify economic doctrines, really enunciated them without the conditions required to make them true. Miss Martineau gave some colour to these statements by her vehement writings against the Factory Acts: and Senior also wrote on the same side. But Miss Martineau was not an economist in the proper sense of the word: she confessed that she never read more than one chapter of an economic book at a time before writing a story to illustrate economic principles, for fear the pressure on her mind should be too great: and before her death she expressed a just doubt whether the principles of economics (as understood by her) had any validity. Senior wrote against the Acts when he had only just begun to study economics: a few years later he formally recanted his opinions. It has sometimes been said that McCulloch was an opponent of the Acts; but in fact he heartily supported them. Tooke was the chief of the sub-Commissioners, whose report on the employment of women and children in the mines roused public opinion to decisive action against it.

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, a lucid writer but not a profound thinker, maintained the extravagant doctrine 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.

APP. B, 7. 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 human nature

§ 7. When comparing the modern view of the vital problem of the Distribution of wealth with that which prevailed at the beginning of last century we have found 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 economist 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 to the direct influence of individual writers, socialists and others; and partly to the indirect influence of a similar change in some branches of natural science.

is partly due to the influence of biological studies.

At the beginning of last 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 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, Comte and others.

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 John Stuart Mill's admirable *Principles of Political Economy*¹.

John Stuart Mill.

¹ James Mill had educated his son in the strictest 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

Mill's followers have continued his movement away from the position taken up 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. Not to mention writers yet living, the new temper is shown in Cliffe Leslie's historical inquiries, and in the many-sided work of Bagehot, Cairnes, Toynbee and others; but above all in that of Jevons, which has secured a permanent and notable place in economic history by its rare combination of many various qualities of the highest order.

APP. B, 7.

Recent English economists.

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. 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 true 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.

Characteristics of modern English work.

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. As a result, many dogmas have been destroyed which appeared to be simple only because they were loosely expressed; but which, for that

The abandonment of dogma, the development of analysis.

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* [it is significant that he did not say *to other branches of Social Philosophy*; comp. Ingram's *History*, p. 154], 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.

APP. B, 8. very reason, 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 steadily and patiently built up. It has enabled us to take broader views of life, to proceed more surely though more slowly, to be more scientific and much less dogmatic than those good and great men who bore the first brunt of the battle with the difficulties of economic problems; and to whose pioneering work we owe our own more easy course.

The change may, perhaps, be regarded as a passing onward from that early stage in the development of scientific method, in which the operations of Nature are represented as conventionally simplified for the purpose of enabling them to be described in short and easy sentences, to that higher stage in which they are studied more carefully, and represented more nearly as they are, even at the expense of some loss of simplicity and definiteness, and even apparent lucidity. And in consequence general reasoning in economics has made more rapid progress, and established a firmer position in this generation in which it is subject to 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
econo-
mists.

§ 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.

American
School.

The greatest relative advance during recent years is perhaps that which has been made by America. A generation ago, the "American school" of economists was supposed to consist of the group of Protectionists who followed Carey's lead. But new schools of vigorous thinkers are now growing up; and there are 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 more especially is the vigorous analytical work of the Austrian economists attracting much attention in all countries.

But on the whole the most important economic work that has been done on the Continent in recent times 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.

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 them¹.

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

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 manufacturers 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, and his *Das nationale System der Politischen Ökonomie* in 1840. It is a disputed point whether Carey owed much to List; see Miss Hirst's *Life of List*, ch. iv. As to the general relations between their doctrines, see Knies, *Pol. Ök.*, 2nd edition, pp. 440, etc.

APP. B, 8.
German
econo-
mists.

List.

The
Germans
press the
claims of
national-
ism against
those of
individual-
ism on

AFF. B, 8.
the one
hand and
cosmopol-
itanism on
the other.

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; and German writers have insisted eagerly, perhaps too eagerly, that altruistic feelings have a 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-
parative
method,
and in
relation to
general
history
and juris-
prudence.

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 social and industrial phenomena of different countries and of different ages; have so arranged them that they throw light upon and interpret one another, and have studied them all in connection with the suggestive history of jurisprudence¹. 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 our real wealth. 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 evolution of man's moral and social life, and of the Divine Principle of which it is an embodiment.

Their
work in
economic
theory and
analysis.

They have given their chief attention to the historical treatment of the science, and to its application 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 theory².

¹ The excellence of this work may perhaps partly be attributed to the union of legal and economic studies in the avenues to many careers in Germany as in other countries of the Continent. A splendid instance is to be found in Wagner's contributions to economics.

² In such matters, the English, the Germans, the Austrians, and indeed every 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, since a new idea is generally of gradual growth, and is often worked out by more than one nation

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

APP. B, 8.

German
Socialism.

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.

But amid all the historical learning and reforming enthusiasm of the age 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 it have a firm backbone of careful reasoning and analysis.

There
is some
danger
that the
severe
and less
popular
task of
careful
scientific
reasoning
may be
neglected.

at the same time, each of those nations is likely to claim it; and thus each is apt to under-estimate the originality of the others.

APPENDIX C¹.

THE SCOPE AND METHOD OF ECONOMICS.

AFF. C, 1. § 1. THERE are some who hold, with Comte, that the scope of any profitable study of man's action in society must be coextensive with the whole of social science. They argue that all the aspects of social life are so closely connected, that a special study of any one of them must be futile; and they urge on economists to abandon their distinctive rôle and to devote themselves to the general advancement of a unified and all embracing social science. But the whole range of man's actions in society is too wide and too various to be analysed and explained by a single intellectual effort. Comte himself and Herbert Spencer have brought to the task unsurpassed knowledge and great genius; they have made epochs in thought by their broad surveys and their suggestive hints; but they can hardly be said even to have made a commencement with the construction of a unified social science.

as is shown by experience,

and as may be inferred from the history of Physical Science.

The physical sciences made slow progress so long as the brilliant but impatient Greek genius insisted on searching after a single basis for the explanation of all physical phenomena; and their rapid progress in the modern age is due to a breaking up of broad problems into their component parts. Doubtless there is a unity underlying 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.

Comte showed well the evils of extreme specialization,

But on the other hand it must be fully conceded to Comte that, 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

¹ See I. II.

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. Mill conceding this continues:—"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 advancement¹."

APP. C, 2.

but failed to prove that there should be none.

§ 2. It is true that the forces with which economics deals have one advantage for deductive treatment in the fact that their method of combination is, as Mill observed, that of mechanics rather than of chemistry. That is to say, when we know the action of two economic forces separately—as for instance the influences which an increase in the rate of wages and a diminution in the difficulty of the work in a trade will severally exert on the supply of labour in it—we can predict fairly well their conjoint action, without waiting for specific experience of it².

Economic forces combine mechanically rather than chemically.

But even in mechanics long chains of deductive reasoning are directly applicable only to the occurrences of the laboratory. By themselves they are seldom a sufficient guide for dealing with the heterogeneous materials and the complex and uncertain combination of the forces of the real world. For that purpose they need to be supplemented by specific experience, and applied in harmony with, and often in subordination to, a ceaseless study of new facts, a ceaseless search for new inductions. For instance, the engineer can calculate with fair

¹ Mill, *On Comte*, p. 82. Comte's attack on Mill illustrates the general rule that in discussions on method and scope, a man is nearly sure to be right when affirming the usefulness of his own procedure, and wrong when denying that of others. The present movement towards Sociology in America, England and other countries recognizes the need for the intensive study of economics and other branches of social science. But perhaps the use of the term Sociology is premature. For it seems to claim that a unification of social sciences is already in sight: and though some excellent intensive studies have been published under the name of Sociology, it is doubtful whether those efforts at unification which have been made so far have achieved any great success beyond that of preparing the way and erecting danger posts at its pitfalls for the guidance of later generations, whose resources will be less inadequate for the giant task than our own.

² Mill exaggerated the extent to which this can be done; and he was thereby led to make excessive claims for the deductive methods in economics. See the last of his *Essays*; Book VI. of his *Logic*, and especially its ninth chapter; also pp. 157-161 of his *Autobiography*. His practice, like that of many other writers on economic method of all shades of opinion, was less extreme than his profession.

APP. C, 2.
 But economics has no near kinship with any physical science.

precision the angle at which an ironclad will lose her stability in still water; but before he predicts how she would behave in a storm, he will avail himself of the observations of experienced sailors who have watched her movements in an ordinary sea; and the forces of which economics has to take account are more numerous, less definite, less well known, and more diverse in character than those of mechanics; while the material on which they act is more uncertain and less homogeneous. Again the cases in which economic forces combine with more of the apparent arbitrariness of chemistry than of the simple regularity of pure mechanics, are neither rare nor unimportant. For instance a small addition to a man's income will generally increase his purchases a little in every direction: but a large addition may alter his habits, perhaps increase his self-respect and make him cease to care for some things altogether. The spread of a fashion from a higher social grade to a lower may destroy the fashion among the higher grade. And again increased earnestness in our care for the poor may make charity more lavish, or may destroy the need for some of its forms altogether.

It is a branch of biology broadly interpreted.

Lastly, the matter with which the chemist deals is the same always: but economics, like biology, deals with a matter, of which the inner nature and constitution, as well as the outer form, are constantly changing. The chemist's predictions all rest on the latent hypothesis that the specimen operated upon is what it is supposed to be, or at least that the impurities in it are only such as may be neglected. But even he, when dealing with living beings, can seldom sail safely any considerable way out of sight of the firm land of specific experience: he must rely mainly on that to tell him how a new drug will affect a person in health, and again how it will affect a person with a certain disease; and even after some general experience he may find unexpected results in its action on persons of different constitutions or in a new combination with other drugs.

If however we look at the history of such strictly economic relations as those of business credit and banking, of trade-unionism or co-operation, we see that modes of working, that have been generally successful at some times and places, have uniformly failed at others. The difference may sometimes be explained simply as the result of variations in general enlightenment, or of moral strength of character and habits of mutual trust. But often the explanation is more difficult. At one time or place men will go far in trust of one another and in sacrifice of themselves for the common wellbeing, but only in certain directions; and at another time or place there will be a similar limitation, but the directions will be different; and every variation of this kind limits the range of deduction in economics.

For our present purpose the pliability of the race is more important than the pliability of the individual. It is true that individual character changes, partly in an apparently arbitrary way, and partly according to well-known rules. It is true for instance that the average

age of the workmen engaged in a labour dispute is an important element in any forecast of the lines on which it will run. But as, generally speaking, young and old, people of a sanguine and a despondent temperament are found in about like proportions at one place as at another, and at one time as at another, individual peculiarities of character and changes of character are a less hindrance to the general application of the deductive method, than at first sight appears. Thus by patient interrogation of nature and the progress of analysis, the reign of law is being made to invade new fields in both therapeutics and economics: and some sort of prediction, independent of specific experience, is becoming possible as to the separate and combined action of an ever-increasing variety of agencies.

APP. C, 3.

§ 3. The function then of analysis and deduction in economics is not to forge a few long chains of reasoning, but to forge rightly many short chains and single connecting links. This however is no trivial task. If the economist reasons rapidly and with a light heart, he is apt to make bad connections at every turn of his work. He needs to make careful use of analysis and deduction, because only by their aid can he select the right facts, group them rightly, and make them serviceable for suggestions in thought and guidance in practice; and because, as surely as every deduction must rest on the basis of inductions, so surely does every inductive process involve and include analysis and deduction. Or to put the same thing in another way the explanation of the past and the prediction of the future are not different operations, but the same worked in opposite directions, the one from effect to cause, the other from cause to effect. As Schmoller well says, to obtain "a knowledge of individual causes" we need "induction; the final conclusion of which is indeed nothing but the inversion of the syllogism which is employed in deduction.... Induction and deduction rest on the same tendencies, the same beliefs, the same needs of our reason."

The work of analysis and deduction Explanation and prediction are the same operation in opposite directions.

We can explain an event completely only by first discovering all the events which can have affected it, and the ways in which they can severally have done so. In so far as our analysis of any of these facts or relations is imperfect, in so far as our explanation liable to error; and the inference latent in it is already on its way to build up an induction which, though probably plausible, is false. While in so far as our knowledge and analysis are complete, we are able by merely inverting our mental process to deduce and predict the future almost as certainly as we could have explained the past on a similar basis of knowledge. It is only when we go beyond a first step that a great difference arises between the certainty of prediction and the certainty of explanation: for any error made in the first step of prediction, will be accumulated and intensified in the second; while in interpreting the past, error is not so likely to be accumulated; for observation or recorded history will probably bring a fresh check at each step. The

APP. C, 4. same processes, both inductive and deductive, are used in nearly the same way in the explanation of a known fact in the history of the tides, and in the prediction of an unknown fact¹.

The difficulty of interpreting facts.

It must then always be remembered that though observation or history may tell us that one event happened at the same time as another, or after it, 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, formal reckoning is never made for all the conditions which were present when the event happened; some are tacitly, if not unconsciously, assumed to be irrelevant. This assumption may be justifiable in any particular case; but it may not. 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.

This difficulty has been made prominent by recent controversies as 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.

Both the difficulty of analysis and the need for it are increased by the fact that no two economic events are exactly alike in all respects. 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 raise substantially the same question. But there is no exact repetition even on a small scale. 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 *prima 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 a closer examination will detect a fundamental difference between their real characters. Till this has been made, no valid argument can be drawn from one case to the other.

§ 4. This brings us to consider the relation in which economics stands to the facts of distant times.

The work of the economic

The study of economic history may have various aims, and correspondingly various methods. Regarded as a branch of general history

¹ Compare Mill, *Logic*, Book vi. ch. iii.

It may aim at helping us to understand "what has been the institutional framework of society at the several periods, what has been the constitution of the various social classes and their relation to one another"; it may "ask what has been the material basis of social existence; how have the necessities and conveniences of life been produced; by what organization has labour been provided and directed; how have the commodities thus produced been distributed; what have been the institutions resting on this direction and distribution"; and so on¹.

APP. C, 4.
historian
is various.

And for this work, interesting and important as it is on its own account, not very much analysis is essential; and most of what is needed may be supplied for himself by a man of active and inquiring mind. Saturated with a knowledge of the religious and moral, the intellectual and æsthetic, the political and social environment, the economic historian may extend the boundaries of our knowledge and may suggest new and valuable ideas, even though he may have contented himself with observing those affinities and those causal relations which lie near the surface.

The aid
of subtle
analysis is
not needed
for all:

But even in spite of himself, his aims will surely run beyond these limits; and will include some attempt to discover the inner meaning of economic history, to unveil the mysteries of the growth and decay of custom, and other phenomena which we are not any longer contented to take as ultimate and insoluble facts given by nature: nor is he likely altogether to withhold himself from suggesting inferences from the events of the past for guidance in the present. And indeed the human mind abhors a vacuum in its notions of the causal relations between the events that are presented vividly to it. By merely placing things together in a certain order, and consciously or unconsciously suggesting *post hoc ergo propter hoc*, the historian takes on himself some responsibility as a guide.

but it is
needed for
deriving
guidance
from the
past for the
present.

For example:—the introduction 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

¹ Ashley, *On the Study of Economic History*.

APP. C, 4. and consumption of gold and silver, and so on.¹ The history of Land Tenures is full of antiquarian interest; but until carefully analysed 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 analysed 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.

Even more interesting and instructive is the history of the professions, made by Gilds and other Corporations and Combinations in industry and in domestic and foreign trade, that they used their privileges on the whole for the benefit of the public. But to bring in a complete verdict on the question, and still more to deduce from it sound guidance for our own time, needs not only the wide general knowledge and subtle instincts of the practised historian, but also a grasp of many of the most difficult analyses and reasonings relating to monopolies, to foreign trade, to the incidence of taxation, etc.

If then the economic historian aims at discovering the hidden springs of the economic order of the world, and at obtaining light from the past for guidance in the present, he should avail himself of every resource that may help him to detect real differences that are disguised by a similarity of name or outward appearance, and real similarities that are obscured by a superficial difference. He should strive to select the true causes of each event and assign to each its proper weight; and above all to detect the remoter causes of change.

An analogy
from naval
history.

An analogy may be borrowed from naval affairs. The details of a battle with appliances that have passed away may be of great interest to the student of the general history of those times; but they may afford little useful guidance for the naval commander of to-day, who has to deal with a wholly different material of war. And therefore, as Captain Mahan has admirably shown, the naval commander of to-day will give more attention to the *strategy* than to the *tactics* of past times. He will concern himself not so much with the incidents of particular combats, as with practical illustrations of those leading principles of action which will enable him to hold his whole force in hand, and yet give to each part of it adequate initiative; to keep up wide communication, and yet be able to concentrate quickly, and select a point of attack at which he can bring an overwhelming force.

Similarly a man saturated with the general history of a period

may give a vivid picture of the tactics of a battle, which will be true in its main outlines, and almost harmless even if occasionally wrong: for no one is likely to copy tactics, the appliances of which have passed away. But to comprehend the strategy of a campaign, to separate the real from the apparent motives of a great general of past times, a man must be a strategist himself. And if he is to make himself responsible for suggesting, however unobtrusively, the lessons which the strategists of to-day have to learn from the story which he records; then he is bound to have analysed thoroughly the naval conditions of to-day, as well as those of the time about which he is writing; and he must neglect no aid for this end that is to be had from the work of many minds in many countries studying the difficult problem of strategy. As it is with naval history, so it is with economic.

APP. C, 4.

It is only recently, and to a great extent through the wholesome influence of the criticisms of the historical school, that prominence has been given to that distinction in economics which corresponds to the distinction between strategy and tactics in warfare. Corresponding to tactics are those outward forms and accidents of economic organization which depend on temporary or local aptitudes, customs and relations of classes; on the influence of individuals; or on the changing appliances and needs of production. While to strategy corresponds that more fundamental substance of economic organization, which depends mainly on such wants and activities, such preferences and aversions as are found in man everywhere: they are not indeed always the same in form, nor even quite the same in substance; but yet they have a sufficient element of permanence and universality to enable them to be brought in some measure under general statements, whereby the experiences of one time and one age may throw light on the difficulties of another.

This distinction is akin to the distinction between the uses of mechanical and of biological analogies in economics. It was not sufficiently recognized by economists at the beginning of last century. It is markedly absent from Ricardo's writings: and when attention is paid, not to the principles which are embodied in his method of working, but to particular conclusions which he reaches; when these are converted into dogmas and applied crudely to the conditions of times or places other than his own, then no doubt they are almost unmitigated evils. His thoughts are like sharp chisels with which it is specially easy to cut one's fingers, because they have such awkward handles.

But modern economists distilling his crude expressions; extracting their essence, and adding to it; rejecting dogmas, but developing principles of analysis and reasoning, are finding the Many in the One and the One in the Many. They are learning for instance that the principle of his analysis of rent is inapplicable to much that commonly goes by the name of rent to-day; as well as to a much larger part of those things which are commonly, but incorrectly, described as rent by

The Many
in the One,
the One in
the Many.

APP. C, 5. historians of the Middle Ages. But yet the application of the principle is being extended, and not contracted. For economists are also learning that it is applicable with proper care to a great variety of things in every stage of civilization which do not appear at first sight to be of the nature of rent at all.

But of course no student of strategy can ignore tactics. And, though no one life will reach out to a study in detail of the tactics of every fight which man has waged with his economic difficulties; yet no study of the broad problems of economic strategy is likely to be worth much unless it is combined with an intimate knowledge of the tactics as well as the strategy of man's struggles against his difficulties in some particular age and country. And further every student should make by personal observation a minute study of some particular set of details, not necessarily for publication, but for his own training; and this will help him much to interpret and weigh the evidence which he obtains in print or writing, whether with regard to present or past times. Of course every thoughtful and observant man is always obtaining, from conversation and current literature, a knowledge of the economic facts of his own time, and especially in his own neighbourhood; and the store of facts which he thus imperceptibly gets is sometimes more full and thorough in certain special regards than is to be distilled from all the records in existence as to some classes of facts in remote places and times. But independently of this, the direct and formal study of facts, perhaps mainly those of his own age, will much exceed the study of mere analysis and "theory," in its demands on the time of any serious economist; even though he may be one of those who rank most highly the importance of ideas relatively to facts, even though he may think that it is not so much the collection of new facts as the better study of those already collected, that is our most urgent need now, or that will help us most in improving the tactics as well as the strategy of man's contests with his difficulties.

Common sense and mother-wit can go far in analysis,

§ 5. It is doubtless true that much of this work has less need of elaborate scientific methods, than of a shrewd mother-wit, of a sound sense of proportion, and of a large experience of life. But on the other hand there is much work that is not easily to be done without such machinery. Natural instinct will select rapidly, and combine justly, considerations which are relevant to the issue in hand; but it will select chiefly from those which are familiar; it will seldom lead a man far below the surface, or far beyond the limits of his personal experience.

but not far enough for all purposes.

And it happens that in economics, neither those effects of known causes, nor those causes of known effects which are most patent, are generally the most important. "That which is not seen" is often better worth studying than that "which is seen." Especially is this the case if we are not dealing with some question of merely local or temporary interest, but are seeking guidance in the construction of

a far-reaching policy for the public good; or if, for any other reason, we are concerned less with immediate causes, than with causes of causes,—*causa causante*. For experience shows, as might have been anticipated, that common sense, and instinct, are inadequate for this work; that even a business training does not always lead a man to search far for those causes of causes, which lie beyond his immediate experience; and that it does not always direct that search well, even when he makes the attempt. For help in doing that, everyone must perforce rely on the powerful machinery of thought and knowledge that has been gradually built up by past generations. For indeed the part which systematic scientific reasoning plays in the production of knowledge resembles that which machinery plays in the production of goods.

When the same operation has to be performed over and over again in the same way, it generally pays to make a machine to do the work; though when there is so much changing variety of detail that it is unprofitable to use machines, the goods 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, to organize methods of reasoning and to formulate general propositions to be used as machinery for working on the facts and as vices for holding them firmly in position for the work. And though it be true that economic causes are intermingled with others in so many different ways, that exact scientific reasoning will seldom bring us very far on the way to the conclusion for which we are seeking, yet it would be foolish to refuse to avail ourselves of its aid, so far as it will reach;—just as foolish as would be the opposite extreme of supposing that science alone can do all the work, and that nothing will remain to be done by practical instinct and trained common sense. An architect whose practical wisdom and æsthetic instincts are undeveloped will build but a poor house however thorough his knowledge of mechanics: but one, who is ignorant of mechanics, will build insecurely or wastefully. A Brindley, without academic instruction, may do some engineering work better than a man of inferior mother-wit, however well he may have been trained. A wise nurse, who reads her patients by instinctive sympathy, may give better counsel on some points than a learned physician. But yet the study of analytical mechanics should not be neglected by the engineer, nor that of physiology by the medical man.

For mental faculties, like manual dexterity, die with those who possess them: but the improvement which each generation contributes to the machinery of manufacture or to the organon of science is handed down to the next. There may be no abler sculptors now than those who worked on the Parthenon, no thinker with more mother-wit than Aristotle. But the appliances of thought develop cumulatively as do those of material production.

APP. C, 5.

Analogy
between
the
machinery
of science
and that of
material
production.

APP. C, 6.

Ideas, whether those of art and science, or those embodied in practical appliances, are the most "real" of the gifts that each generation receives from its predecessors. The world's material wealth would quickly be replaced if it were destroyed, but the ideas by which it was made were retained. If however*the ideas were lost, but not the material wealth, then that would dwindle and the world would go back to poverty. And most of our knowledge of mere facts could quickly be recovered if it were lost, but the constructive ideas of thought remained; while if the ideas perished, the world would enter again on the Dark Ages. Thus the pursuit of ideas is not less "real" work in the highest sense of the word than is the collection of facts; though the latter may in some cases properly be called in German a *Realstudium*, that is, a study specially appropriate to *Realschulen*. In the highest use of the word, that study of any field of the wide realm of economics is most "real" in which the collection of facts, and the analysis and construction of ideas connecting them are combined in those proportions which are best calculated to increase knowledge and promote progress in that particular field. And what this is, cannot be settled offhand, but only by careful study and by specific experience.

Every widening of the scope of economics brings good and evil.

§ 6. Economics has made greater advances than any other branch of the social sciences, because it is more definite and exact than any other. But every widening of its scope involves some loss of this scientific precision; and the question whether that loss is greater or less than the gain resulting from its greater breadth of outlook, is not to be decided by any hard and fast rule.

It is best that each should work as he is inclined, never forgetting his limitations.

There is a large debateable ground in which economic considerations are of considerable but not dominant importance; and each economist may reasonably decide for himself how far he will extend his labours over that ground. He will be able to speak with less and less confidence the further he gets away from his central stronghold, and the more he concerns himself with conditions of life and with motives of action which cannot be brought to some extent at least within the grasp of scientific method. Whenever he occupies himself largely with conditions and motives, the manifestations of which are not reducible to any definite standard, he must forego nearly all aid and support from the observations and the thought of others at home and abroad, in this and earlier generations; he must depend mainly on his own instincts and conjectures; he must speak with all the diffidence that belongs to an individual judgment. But if when straying far into less known and less knowable regions of social study he does his work carefully, and with a full consciousness of its limitations, he will have done excellent service¹.

¹ As the imitators of Michael Angelo copied only his faults, so Carlyle, Ruskin and Morris find to-day ready imitators, who lack their fine inspirations and intuitions.

APPENDIX D¹.

USES OF ABSTRACT REASONING IN ECONOMICS.

§ 1. **INDUCTION**, aided by analysis and deduction, brings together appropriate classes of facts, arranges them, analyses them and infers from them general statements or laws. Then for a while deduction plays the chief rôle: it brings some of these generalizations into association with one another, works from them tentatively to new and broader generalizations or laws and then calls on induction again to do the main share of the work in collecting, sifting and arranging these facts so as to test and "verify" the new law.

APP. D, 1.
Economics contains no long chains of deductive reasoning.

It is obvious that there is no room in economics for long trains of deductive reasoning: no economist, not even Ricardo, attempted them. It may indeed appear at first sight that the contrary is suggested by the frequent use of mathematical formulæ in economic studies. But on investigation it will be found that this suggestion is illusory, except perhaps when a pure mathematician uses economic hypotheses for the purpose of mathematical diversions; for then his concern is to show the potentialities of mathematical methods on the supposition that material appropriate to their use had been supplied by economic study. He takes no technical responsibility for the material, and is often unaware how inadequate the material is to bear the strains of his powerful machinery. But a training in mathematics is helpful by giving command over a marvellously terse and exact language for expressing clearly some general relations and some short processes of economic reasoning; which can indeed be expressed in ordinary language, but not with equal sharpness of outline. And, what is of far greater importance, experience in handling physical problems by mathematical methods gives a grasp, that cannot be obtained equally well in any other way, of the mutual interaction of economic changes. The direct application of mathematical reasoning to the discovery of economic truths has recently rendered great

Benefits of mathematical training.

¹ See I. III.

APP. D, 2.

Free play should be given to the imagination.

For instance, a science of economics might conceivably exist in a world where there was no material money.

services in the hands of master mathematicians to the study of statistical averages and probabilities and in measuring the degree of consilience between correlated statistical tables.

§ 2. If we shut our eyes to realities we may construct an edifice of pure crystal by imaginations, that will throw side lights on real problems; and might conceivably be of interest to beings who had no economic problems at all like our own. Such playful excursions are often suggestive in unexpected ways: they afford good training to the mind: and seem to be productive only of good, so long as their purpose is clearly understood.

For instance, the statement that the dominant position which money holds in economics, results rather from its being a measure of motive than an aim of endeavour, may be illustrated by the reflection that the almost exclusive use of money as a measure of motive 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 others' 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 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 association has grown up in people's minds between that

measurement of motives which is prominent in 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. APP. D, 3

§ 3. The pursuit of abstractions is a good thing, when confined to its proper place. But the breadth of those strains of human character with which economics is concerned has been underrated by some writers on economics in England and other countries; and German economists have done good service by emphasizing it. They seem however to be mistaken in supposing that it was overlooked by the founders of British economics. It is a British 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 misunderstanding at home as well as abroad. It has led people to suppose the foundations of economics to be narrower and less closely in touch with the actual conditions of life than they really are. But in serious work realistic must be closely followed.

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 is there referring to an abstract treatment of economic questions, which he once indeed contemplated; but which he never executed, preferring to write on "Political Economy, with some of its applications to Social Philosophy." It is forgotten also 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, Appendix B, 7). His discussions of economic motives are, however, inferior both in substance and in method to those of his German contemporaries, and notably Hermann. 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' *Politische Ökonomie*, III. 3; and the English reader may be referred to Syme's *Outlines of an Industrial Science*. Germans have done good service by insisting on the breadth of economic motives.

It may be well to give here the chief heads of the analysis of economic motives (*Motive im wirtschaftlichen Handeln*) in the third edition of Wagner's monumental treatise. He divides them into Egoistic and Altruistic. The former are four in number. The first and least intermittent in its action is the striving for one's own economic advantage, and the fear of one's own economic need. Next comes the fear of punishment, and the hope of reward. The third group consists of the feeling of honour, and the striving for recognition (*Geltungsstreben*), including the desire for the moral approbation of others, and Wagner's classification of motives.

APP. D, 3./ the fear of shame and contempt. And the last of the egoistic motives is the craving for occupation, the pleasure of activity; and the pleasure of the work itself and its surroundings, including the "pleasures of the chase." The altruistic motive is "the impelling force (*Trieb*) of the inward command to moral action, the pressure of the feeling of duty, and the fear of one's own inward blame, that is, of the gnawings of conscience. In its pure form this motive appears as the 'Categorical Imperative,' which one follows because one feels in one's soul the command to act in this or that manner, and feels the command to be right....The following of the command is no doubt regularly bound up with feelings of pleasure (*Lustgefühle*), and the not following it with feelings of pain. Now it may be, and often is, that these feelings act as strongly as the Categorical Imperative, or even more strongly, in driving us, or in taking part in driving us on to do or to leave undone. And in so far as this is the case this motive also has in it an egoistic element, or at least itself merges into one."

APPENDIX E¹.

✓ DEFINITIONS OF CAPITAL

§ 1. It was observed in Book II. chapter iv. that economists have no choice but to follow well-established customs as regards the use of the term capital in ordinary business, i.e. trade-capital. The disadvantages of this use are however great and obvious. For instance it compels us to regard as capital the yachts, but not the carriage, belonging to a yacht builder. If therefore he had been hiring a carriage by the year, and instead of continuing to do so, sold a yacht to a carriage builder who had been hiring it, and bought a carriage for his own use; the result would be that the total stock of capital in the country would be diminished by a yacht and a carriage. And this, though nothing had been destroyed; and though there remained the same products of saving, themselves productive of as great benefits to the individuals concerned and to the community as before, and probably even of greater benefits.

APP. E, 1.
Note has already been made of difficulties in the use of the term Trade-capital.

Nor can we avail ourselves here of the notion that capital is distinguished from other forms of wealth by its superior power of giving employment to labour. For in fact, when yachts and carriages are in the hands of dealers and are thus counted as capital, less employment is given to labour by a given amount of yachting or carriage driving than when the yachts or carriages are in private hands and are not counted as capital. The employment of labour would not be increased but lessened by the substitution of professional cookshops and bakeries (where all the appliances are reckoned as capital) for private kitchens (where nothing is reckoned as capital). Under a professional employer, the workers may possibly have more personal freedom: but they almost certainly have less material comfort, and lower wages in proportion to the work they do than under the laxer régime of a private employer.

It does not include all wealth that promotes the employment of labour.

But these disadvantages have been generally overlooked; and several causes have combined to give vogue to this use of the term. One of these causes is that the relations between private employers and their employees seldom enter into the strategical and tactical

Causes that have given vogue to this use of the term.

¹ See above, p. 82.

APP. B, 2. movements of the conflicts between employers and employed; or, as is commonly said, between capital and labour. This point has been emphasized by Karl Marx and his followers. They have avowedly made the definition of capital turn on it; they assert 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.

Secondly this use of the term Capital is convenient in the money market as well as in the labour market. Trade-capital is habitually connected with loans. No one hesitates to borrow in order to increase the trade-capital at his command, when he can see a good opening for its use; and for doing this he can pledge his own trade-capital more easily and more regularly in the ordinary course of business transactions, than he could his furniture or his private carriage. Lastly, a man makes up the accounts of his trade-capital carefully; he allows for depreciation as a matter of course; and thus he keeps his stock intact. Of course a man who has been hiring a carriage by the year, can buy it with the produce of the sale of railway stock that yields very much less interest than he has paid as hire. If he lets the annual income accumulate till the carriage is worn out, it will more than suffice to buy him a new one; and thus his total stock of capital will have been increased by the change. But there is a chance that he will not do this; whereas, so long as the carriage was owned by the dealer, he provided for replacing it in the ordinary course of his business.

Differences as to the delimitation of social capital cause less confusion than might be expected.

§ 2. Let us pass to definitions of capital from the social point of view. It has already been indicated that the only strictly logical position is that which has been adopted by most writers on mathematical versions of economics, and which regards "social capital" and "social wealth" as coextensive; though this course deprives them of a useful term. But whatever definition a writer takes at starting, he finds that the various elements which he includes in it, enter in different ways into the successive problems with which he has to deal. If therefore his definition pretended to precision, he is compelled to supplement it by an explanation of the bearing of each several element of capital on the point at issue; and this explanation is in substance very much like those of other writers. Thus ultimately there is a general convergence; and readers are brought to very much the same conclusion by whatever route they travel; though it may indeed require a little trouble to discern the unity in substance, underlying differences in form and in words. The divergence at starting turns out to be a less evil than it seemed.

We adhere to tradition in using the term

Further, in spite of these differences in words there is a continuity of tone in the definition of capital by the economists of several generations and many countries. It is true that some have laid greater stress on the "productivity" of capital, some on its "prospectiveness";

and that neither of these terms is perfectly precise, or points to any hard and fast line of division. But though these defects are fatal to precise classification, that is a matter of secondary importance. Things relating to man's actions never can be classified with precision on any scientific principle. Exact lists may be made of things which are to be placed in certain classes for the guidance of the police officer, or the collector of import duties: but such lists are frankly artificial. It is the spirit and not the letter of economic tradition, which we should be most careful to preserve. And, as was suggested at the end of Book II. chapter iv., no intelligent writer has ever left out of account either the side of prospectiveness or that of productiveness: but some have enlarged more on the one side and others on the other; while on either side difficulty has been found in drawing a definite line of demarcation.

Let us then look at the notion of capital as a store of things, the result of human efforts and sacrifices, devoted mainly to securing benefits in the future rather than in the present. The notion itself is definite, but it does not lead to a definite classification; just as the notion of length is definite, but yet does not enable us to divide off long walls from short walls save by an arbitrary rule. The savage shows some prospectiveness when he puts together branches of trees to protect him for a night; he shows more when he makes a tent of poles and skins, and yet more when he builds a wooden hut: the civilized man shows increasing prospectiveness when he substitutes solid houses of brick or stone for wooden shanties. A line could be drawn anywhere to mark off those things the production of which shows a great desire for future satisfactions rather than present: but it would be artificial and unstable. Those who have sought one, have found themselves on an inclined plane: and have not reached a stable resting-place till they have included all accumulated wealth as capital.

This logical result was faced by many French economists; who, following in the lines laid down by the Physiocrats, used the term Capital very much in the sense in which Adam Smith and his immediate followers used the word Stock, to include all accumulated wealth (*valeurs accumulées*); i.e. all 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. Especially has this been remarkable in writers who, like Turgot, have been inclined towards mathematical modes of thought; among whom Hermann, Jevons, Walras, and Professors Pareto and Fisher are conspicuous. The writings of Professor Fisher contain a masterly argument, rich in fertile suggestion, in favour of a comprehensive use of the term. Regarded from the abstract and mathematical point of view, his

APP. 2, 2
Capital
regarded
wealth as
an agent
of pro-
duction.

Social
capital
regarded
as a
provision
for the
future.

APP. B, 3. position is incontestable. But he seems to take too little account of the necessity for keeping realistic discussions in touch with the language of the market-place; and to ignore Bagehot's caution against trying "to express various meanings on complex things with a scanty vocabulary of fastened uses¹."

Social capital regarded as a means of production, and first as both supporting and aiding labour;

§ 3. Most of the attempts to define capital rigidly, whether in England or other countries, have turned mainly on its productivity, to the comparative neglect of its prospectivity. They have regarded social capital as a means for acquisition (*Erwerbskapital*) or as a stock of the requisites of production (*Productions-mittel Vorrath*). But this general notion has been treated in different ways.

According to the older English traditions capital consists of those things which *aid or support* labour in production: or, as has been said more recently, it consists of those things without which production could not be carried on with equal efficiency, but which are not free gifts of nature. It is from this point of view that the distinction already noticed between consumption capital and auxiliary capital, has been made.

This view of capital has been suggested by the affairs of the labour market; but it has never been perfectly consistent. For it has been made to include as capital everything which employers directly or indirectly provide in payment for the work of their employees—*wage capital* or *remuneratory capital*, as it is called; but yet not to include any of the things needed for their own support, or that of architects, engineers, and other professional men. But to be consistent it should have included the necessaries for efficiency of all classes of workers; and it should have excluded the luxuries of the manual labour classes as well as of other workers. If, however, it had been pushed to this logical conclusion, it would have played a less prominent part in the disquisition of the relations of employers and employed².

¹ See above, footnote on p. 52.

Hermann said (*Staatwirthschaftliche Untersuchungen*, chs. III. and V.) that capital consists of goods "which are a lasting source of satisfaction that has exchange value." Walras (*Éléments d'Économie Politique*, p. 197) defines capital as "every kind of social wealth which is not consumed at all, or is consumed but slowly; every utility limited in quantity, that survives the first use which is made of it; in one word, which can be used more than once; a house, a piece of furniture."

Knies defined capital as the existing stock of goods "which is ready to be applied to the satisfaction of demand in the future." And Prof. Nicholson says:—"The line of thought suggested by Adam Smith and developed by Knies is found to lead to this result: Capital is wealth set aside for the satisfaction—directly or indirectly—of future needs." But the whole phrase, and especially the words "set aside," seem to lack definiteness, and to evade rather than overcome the difficulties of the problem.

² The following are among the chief definitions of capital by Adam Smith's English followers:—Ricardo said:—"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 said:—

In some countries however, and especially in Germany and Austria, there has been some tendency to confine capital (from the social point of view) to auxiliary or instrumental capital. It is argued that in order to keep clear the contrast between production and consumption, nothing which enters directly into consumption should be regarded as a means to production. But there appears no good reason why a thing should not be regarded in a twofold capacity¹.

APP. B, 3.
—
secondly
as aiding
but not
supporting
labour.

It is further argued that those things which render their services to man not directly, but through the part which they play in preparing other things for his use, form a compact class; because their value is derived from that of the things which they help to produce. There is much to be said for having a name for this group. But there is room for doubt whether capital is a good name for it; and also for doubt whether the group is as compact as it appears at first sight.

Thus we may define instrumental goods so as to include tramways and other things which derive their value from the personal services which they render; or we may follow the example of the old use of the phrase productive labour, and insist that those things only are properly to be regarded as instrumental goods the work of which is directly embodied in a material product. The former definition brings this use of the term rather close to that discussed in the last section and shares with it the demerit of vagueness. The latter is a little more definite: but seems to make an artificial distinction where nature has made none, and to be as unsuitable for scientific purposes as the old definitions of productive labour.

To conclude:—From the abstract point of view the French definition, advocated by Professor Fisher and others, holds the field without a rival. A man's coat is a stored up product of past efforts

"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 said:—"Capital is an article of wealth, the result of human exertion, employed in the production or distribution of wealth." John Stuart Mill said:—"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." We shall have to return to this conception of capital in connection with the so-called Wage Fund doctrine; see Appendix J.

As Held remarked, the practical problems which were prominent early in the last century suggested some such conception of capital as this. People were anxious to insist that the welfare of the working classes depended on a provision of the means of employment and sustenance made beforehand: and to emphasize the dangers of attempting to make employment for them artificially under the extravagance of the Protective system and the old Poor-law. Held's point of view has been developed with great acumen in Cannan's suggestive and interesting *Production and Distribution*, 1776—1848: though some of the utterances of the earlier economists seem capable of other and more reasonable interpretations than those which he assigns to them.

¹ For an argument to this effect, and an excellent discussion of the difficulties of the whole subject, see Wagner, *Grundlegung*, Ed. 3, pp. 315—6.

APP. B, 3. and sacrifices destined as a means to provide him with future gratifications, just as much as a factory is: while both yield immediate shelter from the weather. And if we are seeking a definition that will keep realistic economics in touch with the market-place, then careful account needs to be taken of the aggregate volume of those things which are regarded as capital in the market-place and do not fall within the limits assigned to "intermediate" products. In case of doubt, that course is to be preferred which is most in accordance with tradition. These were the considerations which led to the adoption of the twofold definition of capital, from the business and the social point of view, given above¹.

¹ See II. iv. 1, 5. The connection of the productiveness of capital with the demand for it, and of its prospectiveness with the supply of it has long been latent in men's minds; though it has been much overlaid by other considerations, many of which appear now to be based on misconceptions. Some writers have laid more stress on the supply side and others on the demand side: but the difference between them has often been little more than a difference of emphasis. Those who have laid stress on the productivity of capital, have not been ignorant of man's unwillingness to save and sacrifice the present for the future. And on the other hand, those who have given their thought mainly to the nature and extent of the sacrifice involved in this postponement, have regarded as obvious such facts as that a store of the implements of production gives mankind a largely increased power of satisfying their wants. In short there is no reason to believe that the accounts which Prof. Böhm-Bawerk has given of the "naive productivity theories," the "use theories" etc. of capital and interest would have been accepted by the older writers themselves as well-balanced and complete presentations of their several positions. Nor does he seem to have succeeded in finding a definition that is clear and consistent. He says that "Social capital is a group of products destined to serve towards further production; or briefly a group of intermediate products." He formally excludes (Book 2. ch. vi.) "dwelling houses and other kinds of buildings such as serve immediately for any purpose of enjoyment or education or culture." To be consistent, he must exclude hotels, tramways, passenger ships and trains, etc.; and perhaps even plant for supplying the electric light for private dwellings; but that would seem to deprive the notion of capital of all practical interest. There seems no good ground for excluding the public theatre while including the tramcar, which would not justify the inclusion of mills engaged in making home-spun and the exclusion of those engaged in making lace. In answer to this objection he urges, with perfect reason, that every economic classification must allow for the existence of border lines between any two classes, to contain things which belong in part to each of the two. But the objections submitted to his definition are that its border lines are too broad relatively to the area which they inclose; that it conflicts violently with the uses of the market-place; and that yet it does not embody, as the French definition does, a perfectly consistent and coherent abstract idea.

✓APPENDIX F.

BARTER¹.

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 outweigh that which he would lose by parting with 12 nuts; while the satisfaction which *A* would get from perhaps three nuts would outweigh 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 versa* 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 rate of exchange which has some sort of right to be called the true equilibrium rate, 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 that this rate is six nuts for an apple; and that *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

APP. F.
The rate of barter between two individuals is governed by accident.

There is a rate which may be called the true rate;

but it is not likely to be attained in practice.

¹ See p. 336.

APP. V.

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. *A* 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 rate would have been reached; but it would be an arbitrary equilibrium.

Nor is the case much better in barter between two groups.

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. APP. V.

This uncertainty of the rate at which equilibrium is reached depends indirectly on the fact that one commodity is being bartered for another instead of being sold for money. For, since money is a general purchasing medium, there are likely to be many dealers who can conveniently take in, or give out, large supplies of it; and this tends to steady the market. But where barter prevails apples are likely to be exchanged for nuts in one case, for fish in another, for arrows in another, and so on; the steady influences which hold together a market in which values are set in money are absent; and we are obliged to regard the marginal utilities of all commodities as varying. It is however true that, if nut-growing had been a chief industry of our barter-district, and 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 have visibly affected their stores, or changed appreciably the marginal utility of nuts. In that case the bargaining would have resembled in all fundamentals the buying and selling in an ordinary corn-market.

Much of the uncertainty removed if the marginal utility of one of the two commodities is nearly constant.

Thus, for instance, let a single *A* with 20 apples, bargain with a single *B*. Let *A* be willing to sell 5 apples for 15 nuts, a sixth for 4 nuts, a seventh for 5, an eighth for 6, a ninth for 7 and so on; the marginal utility of nuts being always constant to him, so that he is just willing to sell the eighth for 6 and so on, whether in the earlier part of the trade he has got the better of the bargaining with *B* or not. Meanwhile let *B* be willing to pay 50 nuts for the first five apples rather than go without them, 9 for a sixth, 7 for a seventh, 6 for an eighth, and only 5 for a ninth; the marginal utility of nuts being constant to him, so that he will just give 6 nuts for the eighth apple whether he has bought the earlier apples cheaply or not. In this case the bargaining *must* issue in the transfer of eight apples, the eighth apple being given for six nuts. But of course if *A* had got the better of the bargaining at first, he might have got 50 or 60 nuts for the first seven apples; while if *B* had got the better of the bargaining at first, he might have got the first seven apples for 30 or 40 nuts. This corresponds to the fact that in the corn-market discussed in the text, about 700 quarters would be sold with a final rate of 36s.; but if the sellers had got the best of the bargaining at first, the aggregate price paid might be a good deal more than 700 times 36s.; while if the buyers had got the better of the bargaining at first, the aggregate price would be a good deal less than 700 times 36s. 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 stock of one of the things which is in the market and ready to be exchanged for the other is very large and in many hands; and that therefore its marginal utility is practically constant. See Note XII. *bis* in the Mathematical Appendix.

✓APPENDIX G:

THE INCIDENCE OF LOCAL RATES, WITH SOME SUGGESTIONS AS TO POLICY.

AFF. G, 1.

The incidence of all local taxes is influenced by the migration of the population, and by the manner in which the rates are expended.

Onerous rates.

Beneficial or remunerative rates.

§ 1. We have seen¹ that the incidence of a new local tax on printing would differ from that of a national tax mainly by causing such parts of the local printing industry as could conveniently migrate beyond the boundaries of the local tax to do so. Those customers who needed their printing to be done in the locality would pay rather higher for it. Compositors would migrate till only enough remained to find employment locally at about the same wages as before; and some printing offices would be transferred to other industries. The incidence of general local rates on immovable property follows different lines in some respects. The power of migration beyond the boundaries of the rates is a very important factor here, as in the case of a local tax on printing. But of perhaps even greater importance is the fact that a large part of the local rates is spent in ways that conduce directly to the comfort of those very residents and workers in the locality, who might otherwise be driven away. Here two technical terms are needed. *Onerous rates* are those which yield no compensating benefit to the persons who pay them. An extreme case is that of rates devoted to paying interest on a loan incurred by a municipality for an enterprise which failed and has been abandoned. A more representative case is that of a poor-rate levied mainly from the well-to-do. Onerous rates tend of course to drive away those persons on whom they would fall.

On the other hand *beneficial or remunerative rates* are those spent on lighting, draining, and other purposes; so as to supply the people who pay the rates with certain necessaries, comforts and luxuries of life, which can be provided by the local authority more cheaply than in any other way. Such rates, ably and honestly administered, may confer a net benefit on those who pay them; and an increase in them may attract population and industry instead of repelling it. Of course a rate may be onerous to one class of the population and beneficial to another. A high rate spent on providing good primary and secondary schools may attract artisan residents, while repelling the well-to-do. "Services which are preponderantly National in character" are "generally onerous"; while "those which are preponderantly Local in character generally confer upon rate-payers a direct and peculiar benefit more or less commensurate with the burden²."

But the term "rate-payer" needs to be interpreted differently in

¹ See pp. 453 and 659.

² Above V. IX. 1. This Appendix is largely based on the Memorandum there mentioned.

³ *Final Report of Royal Commission on Local Taxation, 1901, p. 12.*

APP. C, 2. the movement of the ball could be calculated. But before any one tendency has had time to produce much result it will have ceased to exist, and its successor cannot be predicted. Just so, though economists settled once for all, nearly a century ago, the general tendencies of the shifting of taxation; yet the relative weight of onerous rates in different places often changes so rapidly that a tendency may make but little headway before it is stopped off, or even reversed, by changes which cannot be predicted.

The term *building value*.

§ 2. We have already seen that the ground rent which a builder is willing to pay for any site is governed by his estimate of the additional value which that site will give to the buildings erected on it. Before taking the lease his capital and that which he will borrow for the purpose is "free" and expressed in terms of money. The anticipated income from his investment is expressed also in money. He sets on the one side his outlay for building; and on the other side, the excess of the rental value of the building with its site over the ground rent to which he is about to commit himself. He works out—perhaps roughly and by instinct rather than definite arithmetical calculations—the present (discounted) value of this excess for the (say) 99 years of his lease. Finally he takes the lease if he sees his way to a good margin of profit; and no better opening for his enterprise is at hand¹.

He contrives to the best of his ability that the site and the house (or other building), which he puts upon it, shall be permanently appropriate the one to the other. In so far as he succeeds, the rent of the property at any future time is the sum of its annual site value and the annual value of the building; and this he expects to yield him full profits on his outlay, allowing for insurance against the risks of a rather hazardous industry. This second part of the rent is commonly, though perhaps not with strict propriety, called the (annual) building value, or the building rent of the house.

If a building has become inappropriate to its site, the whole value may be only that of the site.

As time goes on, the purchasing power of money may change; the class of house for which that site is suitable is likely to change; and the technique of building is certain to be improved. Consequently the total annual value of the property at a later date consists of its annual site value, together with profits on the cost of building a house giving accommodation equally desirable at that date with the existing house. But all this is subject to the dominant condition that the general character of the house has remained appropriate to its site: if it has not, no precise statement as to the relation between total value, site value and building value can be made. If for instance a warehouse or a dwelling house of quite a different character is needed

¹ See above, V. XI. 3 and 8. The builder generally looks to sell his lease before much of it has run out. But the price which he expects to get is the (discounted) excess of the rental value of the property over the ground rent for the remaining years: and therefore the substance of his calculations is nearly the same as it would be if he intended to keep the property in his own hands.

to develop the full resources of the site, the total value of the property as it stands may be less than its site value alone. For the site value cannot be developed without pulling down those buildings and erecting new. And the value of the old material in those buildings may be less than the cost of pulling them down, allowance being made for the obstruction and loss of time incident thereto.

APP. G,
3, 4.

§ 3. As between two buildings equally eligible in other respects, the occupier will pay for that which has the better situation an annual sum equivalent to its special advantages: but he does not care what part of this sum goes as rent and what as taxes. Therefore *onerous taxes* on site values tend to be deducted from the rental which the owner, or lessee receives: and they are accordingly deducted, in so far as they can be foreseen, from the ground rent which a builder, or anyone else, is willing to pay for a building lease. Such local rates as are remunerative, are in the long run paid by the occupier, but are no real burden to him. The condition "in the long run" is essential: for instance, rates levied on account of interest and sinking fund on a town improvement, which will for several years to come disturb the public thoroughfares, and yield none of its good fruit, will be onerous to the occupier, if he pays it. In strict justice it should be deducted from his rent; because when the improvement is in full working order and especially when the debt has been paid off, so that the rate in question lapses, the owner of the property will reap the benefit of the onerous rates levied on account of it from the first¹.

Onerous taxes on site values, in so far as foreseen, are deducted from ground rents in new leases.

§ 4. Taxes on building values are on a different footing. If uniform all over the country, they do no alter the differential advantages of favoured sites; and therefore do not—directly at least—make the builder or anyone else less willing to pay a high ground rent for a good site. If they are so heavy as materially to narrow the area of ground built upon, they will indeed lower the value of all building ground: and special site values will fall with the rest. But their effect in this direction is so small, that no great error is made by saying that uniform taxes on building values do not fall on the ground owner. The builder, in so far as he anticipates such taxes, adjusts his plans to them: he aims at putting up buildings of only such expense as can be let to tenants at rents that will yield him normal profits; while the tenant pays the rates. He may of course miscalculate. But in the long run builders as a class, like all other able business men, are nearly right in their calculations. And in the long run, uniform taxes on

Taxes on building values, if uniform all over the country, cannot be evaded by the occupier, except in so far as he selects a less expensive building.

¹ This assumes that the land is assessed to the tax at the same amount, whatever the use to which it is put. The case of an extra tax for a special use can be treated as in V. X. 6. If agricultural land were exempt from the tax, then the tenant of a house or factory in the country would escape that part of the site tax which is assessed on the excess of the value of the land for building uses over its value for agriculture. This might slightly increase concentration in towns, and thus take a little from the burden on site owners in them: but it would not materially affect the values of sites in the centre of towns. See also below § 6.

APP. G, 5. building values fall upon the occupier; or at the last on his customers if he uses the building for trade purposes, and his competitors are subject to similar rates.

Remunerative rates are of course no net burden.

But the case is quite different in regard to special high onerous local rates on building values: and here comes in the chief difference between the incidence of national taxes on immovable property and local rates on it. Remunerative expenditure from the rates, which adds more to the conveniences of life than the equivalent of its cost, do not of course repel the occupier: that part of them which is assessed on building values is paid by him, but is no real burden on him; as we have seen in the case of remunerative rates on site values.

Exceptionally onerous rates on building values tend to be shifted on to owners, in the same way as if assessed on site values.

But that part of the rates on building values which is onerous, and in excess of corresponding charges in other localities, does not fall mainly on the occupiers. Any exceptional pressure will cause them to migrate beyond its reach in sufficient numbers to reduce the demand for houses and other buildings in the locality, till the burden of these exceptional rates falls upon the lessees or owners. Builders therefore, in so far as they can foresee the future, deduct the equivalent of these exceptional onerous rates on building values, together with all rates and taxes on site values from the ground rents which they are willing to pay.

Grave inequalities of onerous rates seldom last long.

But the cases, in which great deductions of this kind are made, are not numerous and important. For permanent inequalities of onerous rates, though considerable, are less than is commonly thought: and many of them are due to accidents which cannot easily be foreseen, such as mismanagement by a particular group of local administrators. There is indeed one broad and perhaps permanent cause, which throws its shadow before, namely the tendency of the well-to-do to move away from crowded districts to roomy and fashionable suburbs: thus leaving the working classes to bear an undue share of the national duties towards the very poor. But no sooner does this evil become conspicuous, than legislation is invoked to remedy it, by widening the areas of rating for some purposes, so as to include poor and rich districts under the same budget; and in other ways.

Specially onerous rates in one district are a bounty to ground landlords in others.

It is of greater importance to remember that exceptional onerous rates on building values, while tending to lower site rents, and to lower the ground rents on new leases in the districts to which they apply, are not as great a burden on the whole body of owners of land as seems at first sight. For much of the building enterprise, which is checked by such rates, is not destroyed but directed to other districts, and raises the competition for new building leases there.

Old rates and taxes established before the sale of a property are no burden to

§ 5. The incidence of a long-established rate is little affected by its being collected from the tenant, and not from the owners; though it is vitally affected by the proportions in which the rate is assessed on site and building values respectively. On the other hand, the incidence for the first few years of an increase in onerous rates is much affected by the mode of collection. The occupier bears more of the new burden

than he would if part of the rates were collected from the owners, or he were allowed to deduct a part of them from his rent. This applies only to neighbourhoods that are making progress. Where the population is receding, and building has ceased, onerous rates tend to press upon owners. But in such places economic friction is generally strong.

APP. G, 6.
the purchaser.

It seems probable that the total pressure of onerous rates on the enterprise of building speculators and other interim owners is not very great; and that many rates, of which they have complained, have really enriched them. But vicissitudes of the rates increase slightly the great risks of the building trade, and inevitably the community pays for such risks more than their actuarial equivalent. All this points to the grievous evils which arise from great and sudden increases in the rates, especially in regard to premises the rateable value of which is high relatively to the net income of the occupier.

The evils of sudden great changes in rates.

The trader, especially if a shopkeeper, is often able to throw some part of the burden of his rates on his customers, at all events if he deals in things which cannot be easily got from a distance. But the shopkeeper's rates are very large relatively to his income; and some of that expenditure from the rates, which is remunerative from the point of view of well-to-do residents, appears onerous to him. His work belongs to that group in which economic progress is raising supply relatively to demand. A little while ago his remuneration was artificially high, at the expense of society; but now it is falling to a lower and perhaps more equitable level, and he is slow to recognize the new conditions. His mind fastens on the real injustice which he suffers when rates are suddenly raised much; and he attributes to that some of the pressure on him which is really due to deeper causes. His sense of injustice is sharpened by the fact that he does not always bargain on quite even terms with his landlord; for, to say nothing of the cost of fixtures and the general expense of a change, he might lose a great part of his custom by moving to equally good premises even a little way off. It must however be remembered that the shopkeeper does migrate sometimes, that his mind is alert, and he takes full account of the rates; and thus, after a few years, he shifts the burden of onerous rates on to the owners and customers more fully than a man of almost any other class does. (The hotel and lodging-house keeper may rank here with the shopkeeper.)

The case of the shopkeeper.

§ 6. Land near to a growing town, which is still used for agriculture, may yield very little net rent; and yet be a valuable property. For its future ground rents are anticipated in its capital value; and further its ownership is likely to yield an income of satisfaction outside of the money rent received for it. In this case, it is apt to be under-assessed even when rated at its full rental value; and the question arises whether it should not be assessed at a percentage on its capital value instead of at a percentage on its rent.

The assessment of vacant building land on its capital value,

APP. G, G.

Such a plan would hasten on building, and thus tend to glut the market for buildings. Therefore rents would tend to fall, and builders would be unable to take building leases on high ground rents. The change would therefore transfer to the people at large some part of "the public value" of land which now goes to owners of land, that is built upon or is likely to be built upon. But unless accompanied by energetic action on the part of urban authorities in planning out the lines on which towns should grow, it would result in hasty and inappropriate building; a mistake for which coming generations would pay a high price in the loss of beauty and perhaps of health.

and a partial transference of assessments generally from building values to site values, might work well.

The principle which lies at the base of this scheme is capable of larger application: and something may be said as to one suggestion of an extreme character, which has recently attracted some attention, to the effect that in future rates should be assessed mainly or even wholly on site values, with little or no reference to the value of the buildings. Its immediate effect would be an addition to the value of some properties at the expense of others. In particular it would raise the value of high and expensive buildings in districts in which the rates were heavy, even more than those in which they were low; because it would afford relief from a greater burden. But it would lower the value of low obsolete buildings on large sites in heavily rated districts. After a time, the amount of building put upon a site would vary generally, subject to the bylaws, with its advantages of situation; instead of as now partly in proportion to these advantages, and partly inversely as the rates. This would increase concentration and tend to raise gross site values in advantageous districts: but it would also increase the aggregate expenditure from the rates; and, as this would fall on site values, the net site values might be very low. Whether on the whole the concentration of population would be increased, it is difficult to say: for the most active building would probably be in the suburbs, where vacant land no longer escaped heavy rating. Much would depend on the building bylaws: the concentration might be much lessened by a rigorous rule that there should be a large free space at the back as well as in front of all high buildings¹.

¹ For instance suppose an area of a million square feet to be covered with rows of parallel buildings 40 feet high and 40 feet deep; a bylaw, that the sky must subtend half a right angle at the ground looking straight back as well as front, will cause the distance between each row and the next to be 40 feet: and the aggregate volume of building will be 40 feet multiplied into half the total area, i.e. 20,000,000 cubic feet. Now suppose the height of the buildings to be trebled. Under the same bylaw, the distances between the rows must be 120 feet: and, on the supposition that it is not convenient to increase the depth of the houses beyond 40 feet the aggregate volume of building will be 120 feet multiplied into a quarter of the total area, that is, 30,000,000 cubic feet. Thus the total accommodation will be increased by only one half; instead of being trebled, as would have been the case if the old distances of 40 feet between the rows had been maintained.

§ 7. Reference has already been made to the latent partnership between tenant and landlord in British agriculture generally¹. Competition is less effective in rural than in urban districts. But on the other hand the contributions which the landlord makes to the effective capital of the farm are elastic, and liable to variation according to the stress of circumstances. These adjustments obscure the incidence of agricultural rates, as the eddies of wind rushing past a house will often carry snow-flakes upwards, overbearing, but not destroying, the tendency of gravitation; and hence arises the common saying that the farmer will pay both his and the landlord's share of new rates, if the competition for farms is strong; while the landlord will pay all, if he has reason to fear that farms will be thrown on his hands.

APP. G,
7, 8.
Rural
rates.

However, rural populations probably bear less onerous rates than is commonly supposed. They have gained by improved police service and the abolition of turnpikes, and they have increasing access to advantages purchased by rates in the neighbouring towns, to which they do not contribute, and which are generally much higher than their own rates. In so far as the rates are remunerative in the immediate present, they are no net burden to the occupier, though he pays them. But rates are a considerable percentage on the farmer's net income; and the burden on him is apt to be heavy in those very rare cases in which onerous rural rates are increased greatly. As already indicated, an onerous rate confined to one district is likely to press more heavily on the local landlords and farmers than if general throughout the country².

§ 8. This volume is mainly occupied with scientific inquiries; but yet not without some glances at the practical issues, which supply a motive to economic studies³. And here some consideration of policy seems desirable in regard to rates. For all economists are agreed that land in an old country resembles other forms of wealth in many respects, and that it differs in others: and in some recent controversial writings there has appeared a tendency to relegate the points of difference to a secondary place, and to give almost exclusive prominence to those of similarity. A moderate tendency in that direction might be judicious, if the points of similarity alone were of high importance in urgent practical issues. But the contrary is the fact. And therefore it may be well to consider some great issues of administrative finance, in which a leading part is played by those attributes of land which are not largely shared by other forms of wealth. But first a little must be said as to equity.

Reasons
for departing
from the general
plan of the
volume and
applying
these con-
siderations
to some
practical
issues.

When a special tax is levied for a particular purpose and the case is not one for any interference by public authority with existing rights of ownership—as, for instance, when an arterial system of land drainage is created—the owners of the properties to be benefited may fitly be assessed on the "joint stock principle," according to which calls are made from shareholders in proportion to their stake in the common venture. The equity of every such charge must be judged

Particular
remunerative
rates
to be
judged
separately
onerous
taxation to
be judged
as a whole.

¹ See VI. x. 10.

² See above, p. 437.

³ See I. iv. 2—4.

APP. G, 8. separately. But on the other hand all onerous taxes and rates must be judged in equity as a whole. Almost every onerous tax taken by itself presses with undue weight on some class or other; but this is of no moment so long as the inequalities of each are compensated by those of others, and variations in the several parts synchronize. If that difficult condition is satisfied, the system may be equitable, though any one part of it regarded alone would be inequitable.

Taxes on houses are roughly proportionate to expenditure and equitable in themselves.

Secondly, there is a general agreement that a system of taxation should be adjusted, in more or less steep graduation, to people's incomes: or better still to their expenditures. For that part of a man's income, which he saves, contributes again to the Exchequer until it is consumed by expenditure. Consequently, when considering the fact that our present system of taxation, general and local, bears heavily on houses, it should be remembered that large expenditure generally requires large house-room: and that while taxes, and especially graduated taxes on expenditure in general, present great technical difficulties to the tax collector; and further cost much more to the consumer directly and indirectly than they bring into the revenue; taxes on houses are technically simple, cheap in collection, not liable to evasion, and easy of graduation¹.

But heavy taxes on trade premises are equitable only in so far as they are shifted: and new taxes cannot be shifted quickly.

But, thirdly, this argument does not apply to buildings other than houses. And for that reason it may be equitable to tax shops, warehouses, factories, etc. on a lower scale than houses, at all events as far as new rates are concerned: the burden of old rates is already shifted from the occupiers of business premises partly on to their landlords and partly on to their customers. This process of shifting is constantly going on; and therefore no great hardship would be inflicted on the trading classes in urban districts if they were charged at once with a farthing for every penny of new rates; while a part, or the whole, of the remaining three farthings were left to be added to their burden gradually by small annual percentages. It may be that some such plan will be necessary, if the expenses of urban local government continue to increase fast.

The statesman has heavy and many-sided

These considerations lead us to repeat that, whether in an old or a new country, a far-seeing statesman will feel a greater responsibility to future generations when legislating as to land than as to other forms of wealth; and that, from the economic and from the ethical point of

¹ In old times the windows of a house were taken as representative of the house, and were taxed heavily: but the tax did not strike, and was not intended to strike, persons as owners and users of windows only; it was intended to strike them, and did strike them, as owners and users of houses. And, just as the window is a more or less good representative of the house; so the house is a representative, perhaps a better representative, of a certain scale and style of household expenditure in general; and when houses are taxed, the tax is, and is intended to be, a tax upon the ownership and use of the means of living in certain general conditions of comfort and social position. If part of the tax assessed on houses were removed, and the deficit made up by taxes assessed on furniture and indoor servants, the true incidence of the taxes would be nearly the same as now.

view, land must everywhere and always be classed as a thing by itself. If from the first the State had retained true rents in its own hands, the vigour of industry and accumulation need not have been impaired, though in a very few cases the settlement of new countries might have been delayed a little. Nothing at all like this can be said of the incomes derived from property made by man. But the very greatness of the public interests concerned makes it specially necessary to bear in mind, when discussing the equities of the public value of land, that a sudden appropriation by the State of any incomes from property, the private ownership of which had once been recognized by it, would destroy security and shake the foundations of society. Sudden and extreme measures would be inequitable; and partly, but not solely for that reason, they would be unbusiness-like and even foolish.

APP. G, 9.
responsibilities in relation to the land.

Caution is necessary. But the cause of high site values is that concentration of population, which is threatening a scarcity of fresh air and light and playroom so grievous as to lower the vigour and the joyousness of the rising generation. Thus rich private gains accrue, not merely through causes which are public rather than private in their character, but also at the expense of one of the chief forms of public wealth. Large expenditure is needed to secure air and light and playroom. And the most appropriate source from which that expense can be defrayed seems to be those extreme rights of private property in land, which have grown up almost imperceptibly from the time when the king, representing the State, was the sole *landowner*. Private persons were but *landholders* subject to the obligation to work for the public wellbeing: they have no equitable right to mar that wellbeing by congested building.

§ 9. Accordingly the following practical suggestions seem to emerge:—As regards old rates a sudden change in the person from whom they are collected seems inadvisable; but additional rates should, as far as may be convenient, be collected from the person on whom they are ultimately to fall; unless, like the income tax under Schedule A, they are collected from the tenant with the instruction that they are to be deducted from his rent.

Sudden disturbances of old rates are to be avoided.

The reasons for this are that nearly the whole of that part of old rates, which is assessed on public or site value of land, is already borne by owners (including lessees, so far as those rates go, which, though old, were not anticipated when their leases were taken); and nearly all the remainder of it is borne by tenants or their customers. This result would not be very greatly disturbed by allowing the tenant to deduct a half or even the whole of his rates from his rent: though such a law would run some risk of handing over some of the property of the owners to lessees, who had reckoned for paying those old rates when taking their leases. On the other hand, a provision for the division of new, that is additional, rates would have great advantages: the

New rates should be imposed as far as may be on those by whom they are ultimately to be paid.

APP. G, D. occupier whether of a farm, of business premises or a house would deduct one half of the new rates from his rent; his immediate landlord would deduct in proportion from his payments to the superior holder next to him; and so on. And in addition new local taxes on business premises of all kinds might be assessed, as has just been suggested, at less than full rates in the first instance; and gradually increased. By these provisions farmers, shopkeepers and other traders would be relieved from the occasional injustice, and the constant fear of injustice, which are now associated with sudden, disproportionate additions to the public burdens thrown upon particular classes.

Urban land might be charged with a general site rate and a special "fresh air rate."

In regard to site values, it would seem well to rule that all land, whether technically urban or not, should be regarded as having a special site value if when cleared of buildings it could be sold at even a moderately high price, say £200 an acre. It might then be subjected to a general rate assessed on its capital value; and, in addition, to a "fresh air rate" to be spent by local authority under full central control for the purposes indicated above. This fresh air rate would not be a very heavy burden on owners, for a good deal of it would be returned to them in the form of higher values for those building sites which remained. As it is, the expenditure of such private societies as the Metropolitan Public Gardens Association, and much of the rates raised on building values for public improvements, is really a free gift of wealth to owners who are already fortunate.

Rates should be graduated but no one wholly exempted.

For rural and urban districts alike, after reckoning for the initial rates on land, the remainder of the necessary funds would perhaps best be obtained by rates on immovable property, supplemented by some minor local taxes at the discretion of the local authorities. The Inhabited House Duty might be suppressed, unless it was needed for any great new expenditure such as old age pensions: and the main rates might be graduated as the present Inhabited House Duty is; but more gently for houses of moderate size, and more severely for very large houses. But no one should be exempted altogether: for so long as a person retains the right of voting on the levying and expenditure of rates, it is not safe that he should wholly escape their pressure. It may however be safe and reasonable to return to him or his children the equivalent of his payments in such benefits as will increase physical and mental health and vigour, and will not tend towards political corruption¹.

¹ The recent Commission on Local Taxation was much occupied with the difficulty of assessing site values; and with the even greater difficulty of making *ad interim* arrangements by which an equitable share (whether more or less) of the rates, which were designed in the long run to be paid by the ultimate land-owners, might be transferred from the occupiers to leasees. (See especially pp. 159—178 of the *Final Report*.) The difficulty of assessment, though undoubtedly very great, is of a kind to be diminished rapidly by experience: the first thousand such assessments might probably give more trouble, and yet be less accurately made than the next twenty thousand.

APPENDIX H¹.

LIMITATIONS OF THE USE OF STATICAL ASSUMPTIONS IN REGARD TO INCREASING RETURN.

§ 1. SOME hints have already been given of the difficulties which beset the theory of equilibrium in regard to commodities which obey the law of increasing return. Those hints are now to be developed a little.

APP. H,
1, 2.

Nature
of the
difficulty
to be
considered.

The central point is that the term "margin of production" has no significance for long periods in relation to commodities the cost of production of which diminishes with a gradual increase in the output; and a tendency to increasing return does not exist generally for short periods. Therefore, when we are discussing the special conditions of value of those commodities which conform to that tendency, the term "margin" should be avoided. It may be used of course for these commodities as for all others, with regard to a short and quick fluctuation in demand; because in relation to such fluctuations the production of those commodities, as well as others, conforms to the law of diminishing and not increasing return. But in problems in which the tendency to increasing return is in effective force, there is no clearly defined marginal product. In such problems our units have to be larger, we have to consider the conditions of the representative firm rather than a given individual firm; and above all we have to consider the cost of a whole process of production, without any attempt to isolate that of a single commodity, such as a single rifle or yard of cloth. It is true that when nearly the whole of any branch of industry is in the hands of a few giant businesses, none of them can be fairly described as "representative." If these businesses are fused in a trust, or even closely combined with one another, the term "normal expenses of production" ceases to have a precise meaning. And, as will be argued fully in a later volume, it must be regarded as *prima facie* a monopoly; and its procedure must be analysed on the lines of Book V. chapter XIV.; though the last years of the nineteenth century and the early years of this have shown that even in such cases competition has a much greater force, and the use of the term "normal" is less inappropriate than seemed probable *a priori*.

§ 2. Let us return to the instance of an increased demand for aneroid barometers, caused by a movement of fashion, which after a while had led to improved organization and to a lower supply price². When at last the force of fashion died away, and the demand for aneroids was again based solely on their real utility; this price might

An illustration.

¹ See p. 461.

² See V. XII. 1.

APP. B, 2. be either greater or less than the normal demand price for the corresponding scale of production. In the former case capital and labour would avoid that trade. Of the firms already started some might pursue their course, though with less net gains than they had hoped; but others would try to edge their way into some nearly related branch of production that was more prosperous: and as old firms dwindled, there would be few new ones to take their place. The scale of production would dwindle again; and the old position of equilibrium would have shown itself fairly stable against assaults.

But now let us turn to the other case, in which the long-period supply price for the increased output fell so far that the demand price remained above it. In that case undertakers, looking forward to the life of a firm started in that trade, considering its chances of prosperity and decay, discounting its future outlays and its future incomings, would conclude that the latter showed a good balance over the former. Capital and labour would stream rapidly into the trade; and the production might perhaps be increased tenfold before the fall in the demand price became as great as the fall in the long-period supply price, and a position of stable equilibrium had been found.

Two positions of stable equilibrium are theoretically possible.

For indeed, though in the account of the oscillations of demand and supply about a position of stable equilibrium, which was given in the third chapter, it was tacitly implied, as is commonly done, that there could be only one position of stable equilibrium in a market: yet in fact under certain conceivable, though rare, conditions there can be two or more positions of real equilibrium of demand and supply, any one of which is equally consistent with the general circumstances of the market, and any one of which if once reached would be stable, until some great disturbance occurred¹.

¹ Besides positions of stable equilibrium, there are theoretically at least positions of unstable equilibrium: they are the dividing boundaries between two positions of stable equilibria, 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. 38 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 shows 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

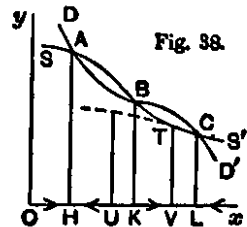


Fig. 38.

§ 3. It must however be admitted that this theory is out of touch with real conditions of life, in so far as it assumes that, if the normal production of a commodity increases and afterwards again diminishes to its old amount, the demand price and the supply price will return to their old positions for that amount¹. APP. II, §

Whether a commodity conforms to the law of diminishing or increasing return, the increase in consumption arising from a fall in price is gradual²; and, further, 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 price of cotton during the American war was higher than it would have been if the previous low price had not brought cotton into common use to meet wants, many of which had been created by the low price. Thus then the list of No great violence is involved in the assumption that the list of demand prices is rigid;

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—

The equilibrium of demand and supply corresponding to the 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, which is the same thing, according as it lies below or above the supply curve just to the right of that point.

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 much capital in overcoming the initial difficulties of the production, and bringing out the commodity at a price which will ensure large sales.

¹ See V. III. §.

² See III. IV. §.

APP. B, 3. 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 raised¹.

but the assumption that the list of supply prices is rigid is inappropriate to increasing return.

Again, the list of supply prices may have fairly represented the actual fall in the supply price of the thing that 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 list of supply prices which had held for the forward movement would not hold for the backward 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 wares².

¹ 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.

² For instance, the shape of the supply curve in fig. 38, 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 TP . 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. Professor Bullock, *Quarterly Journal of Economics*, Aug. 1902, p. 508, argues that this dotted curve should not slope upward from T however gently: but should slope downward, to indicate that the diminished production will lower marginal cost, "by forcing out of business the weakest producers," so that the marginal cost will in future be that of more competent producers than before. This result is possible. But it must be remembered that the marginal cost of the weakest producer does not govern value, but only indicates the force of the causes which govern it. In so far as the economies of production on a large scale are "internal," i.e. belonging to the internal organization of individual firms, the weaker firms must speedily be driven out of existence by the stronger. The continued existence of weaker

Partly for this reason, there are not 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 by the dealers concerned. 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 lists of demand and supply prices far ahead, we should find them keeping close together¹. 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.

APP. H, 3.
A small change in demand or supply often changes much the equilibrium price.

The unsatisfactory character of these results is partly due to the imperfections of our analytical methods, and may conceivably be much diminished in a later age by the gradual improvement of our scientific machinery. We should have made a great advance if we could represent the normal demand price and supply price as functions both of the amount normally produced and of the time at which that amount became normal².

firms is an evidence that a strong firm cannot indefinitely increase its output; partly because of the difficulty of extending its market, and partly because the strength of a firm is not permanent. The strong firm of to-day was probably weak, because young, some time back; and will be weak, because old, some time hence. With a smaller output there will still be weak firms at the margin; and they will probably in the course of time be weaker than if the scale of total production had been maintained. Also the external economies will be less. In other words the representative firm will probably be smaller, weaker, and with less access to external economies. See Prof. Flux in the same *Journal* for Feb. 1904.

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 One difficulty arises from the fact that a suitable time to allow for the introduction of the economies appertaining to one increase in the scale of production is not long enough for another and larger increase, so we must fix on some fairly long time ahead, which is likely to be indicated by the special problem in hand, and adjust the whole series of supply prices to it.

We could get much nearer to nature if we allowed ourselves a more complex illustration. We might take a series of curves, of which the first allowed for the economies likely to be introduced as the result of each increase in the scale of production during one year, a second curve doing the same for two years, a third for three years, and so on. Cutting them out of cardboard and standing them up side by side, we should obtain a *surface*, of which the three dimensions represented

APP. B, 4.
Only in a stationary state would average expenses be equal to marginal and to normal expenses.

§ 4. Next let us revert to the distinction between average values and normal values¹. In a stationary state the income earned by every appliance of production being truly anticipated beforehand, would represent the normal measure of the efforts and sacrifices required to call it into existence.

The aggregate expenses of production might then be found either by multiplying these marginal expenses by the number of units of the commodity; or by adding together all the actual expenses of production of its several parts, and adding in all the rents earned by differential advantages for production. The aggregate expenses of production being determined by either of these routes, the average expenses could be deduced by dividing out by the amount of the commodity; and the result would be the normal supply price, whether for long periods or for short.

But in the world in which we live, the term "average" expenses of production is somewhat misleading. For most of the appliances of production, material and personal, by which a commodity was made, came into existence long before. Their values are therefore not likely to be just what the producers expected them to be originally; but some of their values will be greater, and others less. Thus present incomes earned by them will be governed by the general relations between the demand for, and the supply of, their products; and their values will be arrived at by capitalizing these incomes. And therefore, when making out a list of normal supply prices, which, in conjunction with the list of normal demand prices, is to determine the equilibrium position of normal value, we cannot take for granted the values of these appliances for production without reasoning in a circle.

This caution, which is of special importance with regard to industries that tend to increasing return, may be emphasized by a diagrammatic presentation of the relations of demand and supply which are possible in a stationary state, but only there. There every particular thing bears its proper share of supplementary costs; and it would not ever be worth while for a producer to accept a particular order at a price other than the total cost, in which is to be reckoned a charge for the task of building up the trade connection and external organization of a representative firm. The illustration has no positive value: it merely guards against a possible error in abstract reasoning².

amount, price, and time respectively. If we had marked on each curve the point corresponding to that amount which, so far as can be foreseen, seems likely to be the normal amount for the year to which that curve related, then these points would form a curve on the surface, and that curve would be a fairly true long-period normal supply curve for a commodity obeying the law of increasing return. Compare an article by Mr Cunyngbame, in the *Economic Journal* for 1892.

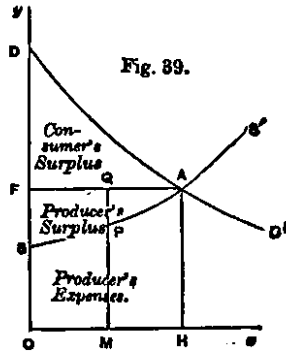
¹ See above V. III. 6; v. 4; and IX. 6.

² In the adjoining diagram, SS' is not a true supply curve adapted to the conditions of the world in which we live; but it has properties, which are often erroneously attributed to such a curve. We will call it the *particular expenses*

This may be illustrated by a diagram.

curve. As usual the amount of a commodity is measured along Ox , and its price along Oy . OH is the amount of the commodity produced annually, AH is the equilibrium price of a unit of it. The producer of the OH th unit is supposed to have no differential advantages; but the producer of the OM th unit has differential advantages which enable him to produce with an outlay PM , a unit which it would have cost him an outlay AH to produce without those advantages. The locus of P is our particular expenses curve; and it is such that any point P being taken on it, and PM being drawn perpendicular to Ox , PM represents the particular expenses of production incurred for the production of the OM th unit. The excess of AH over $PM=QP$, and is a producer's surplus or rent. For convenience the owners of differential advantages may be arranged in descending order from left to right; and thus SS' becomes a curve sloping upwards to the right.

Proceeding as in the case of consumer's surplus or rent (III. VI. 3), 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 curve SA , the lower part of each representing the expenses of production of a unit of the commodity, and the upper the contribution which that unit 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 an amount OH . The upper set of thick lines taken together fill up the space FSA , which therefore represents producer's surplus or rent in the ordinary sense of the term. Subject to the corrections mentioned above (III. VI. 3), 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 $OH \times HA$.



Now the difference between the particular expenses curve and a normal supply curve lies in this, that in the former we do, and in the latter we do not, take the general economies of production as fixed and uniform throughout. The particular expenses curve is based throughout on the assumption that the aggregate production is OH , and that all the producers have access to the internal and external economies which belong to this scale of production; and, these assumptions being carefully borne in mind, the curve may be used to represent a particular phase of any industry, whether agricultural or manufacturing; but they cannot be taken to represent its general conditions of production.

That can be done only by the normal supply curve, in which PM represents the normal expenses of production of the OM th unit on the supposition that OM units (not any other amount, as OH) are being produced; and that the available economies of production external and internal are those which belong to a representative firm where the aggregate volume of production is OM . These economies will generally be less than if the aggregate volume of production were the larger quantity OH ; and therefore, M being to the left of H , the ordinate at M for the supply curve will be greater than for a particular expenses curve drawn for an aggregate production OH .

It follows that the area SAF which represents aggregate rent in our present diagram would have represented something less than the aggregate rent, if SS' had been a normal supply curve even for agricultural produce (DD' being the normal demand curve). For even in agriculture the general economies of production increase with an increase in the aggregate scale of production. *—*

APP. B, 4.

If however we choose to ignore this fact for the sake of any particular argument; that is, if we choose to assume 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 units were produced, it remains also the expenses of production (other than rent) of the OM th unit even when OH is produced; or, in other words, if we assume that the increase in production from the amount OM to the amount OH did not alter the expenses of production of the OM th unit, then we may regard SAP as representing the aggregate rent even when SS' is the normal supply curve. It may be occasionally convenient to do this, attention being of course called every time to the nature of the special assumption made.

But no assumption of the kind can be made with regard to the supply curve of a commodity that obeys the laws of increasing return. To do so would be a contradiction in terms. The fact that the production of the commodity obeys that law, implies that the general economics available when the aggregate volume of production is large, are so much greater than when it is small, as to override the increasing resistance that nature offers to an increased production of the raw materials of which the industry makes use. In the case of a particular expenses curve, MP will always be less than AH (M being to the left of H) whether the commodity obeys the law of increasing or diminishing return; but on the other hand in the case of a supply curve, for a commodity that obeys the law of increasing return, MP would generally be greater than AH .

It remains to say that if we are dealing with a problem in which some even of those appliances for production which were made by man, have to be taken as a given quantity for the time, so that their earnings will be of the nature of a quasi-rent; we may then draw a particular expenses curve, in which MP stands for the expenses of production in the narrower sense in which such quasi-rents are excluded; and the area SAP would thus represent the aggregate of rents proper and of these quasi-rents. This method of treating short-period normal value problems has attractions, and may perhaps ultimately be of service: but it requires careful handling, for the assumptions on which it rests are very alippery.

APPENDIX I¹.

✓ RICARDO'S THEORY OF VALUE.

§ 1. 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 him²." 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.

APP. I,
Ricardo had practical experience, but was abstract and unsystematic as a writer.

If then we seek to understand him rightly, 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 writings indicate that he would have wished us to give them. If we do this with the desire to ascertain what he really meant, his doctrines, though very far from complete, are free from many of the errors that are commonly attributed to them.

¹ Compare the concluding remarks of Book V.: and Appendix B, 5.

² See an admirable article on *Ricardo's Use of Facts* in the first volume of the *Harvard Quarterly Journal of Economics*, by the late Professor Dunbar.

AFF. 1, 2.
He took utility for granted, because its influence is relatively simple;

He considers, for instance (*Principles*, Ch. 1. § 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 very 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.

and he analysed cost of production because its influence is less obvious.

§ 2. 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.

1. Cost of production dependent on quantity of labour used directly;

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."

That is, if two things are made by twelve and four men's labour for a year, all the men being of the same grade, the normal value of the former will be three times that of the latter. For if ten per cent. has to be added for profits on the capital invested in the one case, ten per cent. will need to be added in the other also. [If w be a year's wages of a worker of this class, the costs of production will be $4w \cdot \frac{110}{100}$, and $12w \cdot \frac{118}{100}$; and the ratio of these is 4 : 12, or 1 : 3.]

APP. I, 2.

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 started; and 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.

2, also on quality of that labour;

Next in Section III. 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; and here the element of time, which he had carefully kept in the background at starting, was necessarily introduced.

3, on labour spent previously on implements;

Accordingly in Section IV. he discusses more fully the influences exerted on the value of "a set of commodities" [he uses this simple method sometimes to evade the difficulties of the distinctions between prime cost and total cost]: and especially he takes account of the different effects of the application of circulating capital which is consumed in a single use, and of fixed capital; and again of the time for which labour must be invested in making machinery to make commodities. If that be long, they will have a greater cost of production and be "more valuable to compensate for the greater length of time, which must elapse before they can be brought to market."

4, on the length of time which must elapse before the goods can be brought to market;

And lastly in Section V. he sums up the influence which different lengths of investment, whether direct or indirect, will have upon relative values; arguing correctly that if wages all rise and fall together the change will have no permanent effect on the relative values of different commodities. But he argues if the rate of profits falls it will lower the relative values of those commodities the production of which requires capital to be invested a long while before they can be brought to market. For if in one case the average investment is for a year and requires ten per cent. to be added to the wages bill for profits; and in another is for two years and requires

5, on the consequent influence of the rate of profits on relative value.

APP. 1, 2. twenty per cent. to be added; then a fall of profits by one-fifth will reduce the addition in the latter case from 20 to 16, and in the former only from 10 to 8. [If their direct labour cost is equal the ratio of their values before the change will be $\frac{1}{1.091}$ or 1.091; and after the change $\frac{1}{1.074}$ or 1.074; a fall of nearly two per cent.] His argument is avowedly only provisional; in later chapters he takes account of other causes of differences in profits in different industries, besides the period of investment. But it seems difficult to imagine how he could more strongly have emphasized the fact that Time or Waiting as well as Labour is an element of cost of production than by occupying his first chapter with this discussion. Unfortunately however he delighted in short phrases, and he thought that his readers would always supply for themselves the explanations of which he had given them a hint.

He corrects Malthus' anticipation of Marx's misunderstanding.

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.

But he was too spare of words.

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 condition that other things are equal: i.e., 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. He does not state clearly, and in some cases he perhaps did not fully and clearly perceive how, in the problem of normal value, the various elements govern one another *mutually*, and not *successively* in a long chain of causation. And he was more guilty than almost anyone else of the bad habit of endeavouring to express great economic doctrines in short sentences¹.

¹ Prof. Ashley in a suggestive criticism of this Note, as part of an attempted "Rehabilitation of Ricardo" (*Economic Journal*, Vol. I.), insists that it has been commonly believed that Ricardo did in fact habitually think of mere quantities of labour as constituting cost of production, and governing value, subject only to "slight modifications"; and that this interpretation of him is the most consistent with his writings as a whole. It is not disputed that this interpretation has been accepted by many able writers: otherwise there would have been little need for rehabilitating, i.e. clothing more fully his somewhat too naked doctrines. But

§ 3. There are few writers of modern times who have approached as near to the brilliant originality of Ricardo as Jevons has done. But he appears to have judged both Ricardo and Mill harshly, and to have attributed to them doctrines narrower and less scientific than those 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, as to 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.

APP. I, 3.
The brilliant one-sidedness of Jevons.

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 form, loose and inaccurate as it is, by Ricardo and Mill; but they would not have accepted the former statement. 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."

Jevons' central position.

the question whether Ricardo is to be supposed to have meant nothing by the first chapter of his book, merely because he did not constantly repeat the interpretation clauses contained in it, is one which each reader must decide for himself according to his temperament: it does not lend itself to be solved by argument. It is here claimed not that his doctrines contained a complete theory of value: but only that they were in the main true as far as they went. Rodbertus and Marx interpreted Ricardo's doctrine, to mean that interest does not enter into that cost of production which governs (or rather takes part in governing) value: and as regards this Prof. Ashley appears to concede all that is claimed here when (p. 480) he takes it as beyond question that Ricardo "regarded the payment of interest, that is, of something more than the mere replacement of capital, as a matter of course"

APP. I, 3. 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*, which is the cause of *D*; then *A* is the cause of *D*. But in fact there is no such series.

Jevons implies that the things balanced against one another in a market are utilities; but they are indirect measures of utility.

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 "the price which consumers are only just willing to pay,"—the phrase which in the present treatise is 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" measured along one line and losing a "utility" measured along 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. It is true that Jevons was himself aware of this; and that his account can be made consistent with the facts of life by a series of interpretations, which in effect substitute "demand-price" and "supply-price" for "utility" and "disutility": but, when so amended, they lose much of their aggressive force against the older doctrines, and if both are to be held severally to a strictly literal interpretation, then 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.

He substitutes a catena of causes for mutual causation.

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 as mutually determining one another (subject to certain other conditions), 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 determines one another under the action of gravity, he had said that *A* determines *B*, and *B* determines *C*. Someone 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,

APP. I, 3.

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 Dr 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,

Ricardo's correct though inadequate treatment of utility, took some account of the element of time.

APP. I, 8. 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' position less different than it appears,

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."

This criticism seems to contain an important truth; though the wording of the last part is open to objection. 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 deliberately¹.

and he underrated the broad symmetry of demand and supply.

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, that fundamental symmetry of the general relations in which demand and supply stand to value, which coexists with striking differences in the details of those relations. We must not indeed forget that, at the time at which he wrote, the demand side of the theory of value had been much neglected; and that he did excellent service by calling attention to it and developing it. There are 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 predecessors².

¹ See V. III 7.

² See an article on Jevons' *Theory* by the present writer in the *Academy* for April 1, 1872. The edition of his *Theory* brought out by his son in 1911, contains an Appendix on his account of interest, with special reference to that article (see also above VI. I. 8). He contends that his father's theory is "true as far as it goes" though he "followed the unfortunate practice of the Ricardian school by abstracting for treatment certain ideas, and assuming that his readers are familiar with their relations and taking his point of view." The son may be accepted as the true interpreter of the father: and the debts of economics to the father are no doubt so great as to be comparable with its transcendent obligations to Ricardo. But Jevons' *Theory* had a combative side, as well as a constructive. In great part it was an attack on what he called in his Preface, "that able but wrong-headed man, David Ricardo" who "shunted the car of Economic science on to a wrong line."

It seemed right to select Jevons' attack for reply, because, in England at all events, it has attracted more attention than any other. But somewhat similar attacks on Ricardo's theory of value had been made by many other writers. Among them may specially be mentioned Mr Macleod, whose writings before 1870 anticipated much both of the form and substance of recent criticisms on the classical doctrines of value in relation to cost, by Profs. Walras and Carl Menger, who were contemporary with Jevons, and Profs. v. Böhm-Bawerk and Wieser, who were later.

The carelessness of Ricardo with regard to the element of Time has been imitated by his critics, and has thus been a source of twofold misunderstanding. For they attempt to disprove doctrines as to the ultimate tendencies, the causes of causes, the *causæ causantes*, of the relations between cost of production and value, by means of arguments based on the causes of temporary changes, and short-period fluctuations of value. Doubtless nearly everything they say when expressing their own opinions is true in the sense in which they mean it; some of it is new and much of it is improved in form. But they do not appear to make any progress towards establishing their claim to have discovered a new doctrine of value which is in sharp contrast to the old; or which calls for any considerable demolition, as distinguished from development and extension, of the old doctrine.

Ricardo's first chapter has been discussed here with sole reference to the causes which govern the relative exchange values of different things; because its chief influence on subsequent thought has been in this direction. But it was originally associated with a controversy as to the extent to which the price of labour affords a good standard for measuring the general purchasing power of money. In this connection its interest is mainly historical: but reference may be made to an illuminating article on it by Prof. Hollander in the *Quarterly Journal of Economics*, 1904.

His criticisms on Ricardo achieved some apparently unfair dialectical triumphs, by assuming that Ricardo thought of value as governed by cost of production without reference to demand. This misconception of Ricardo was doing great harm in 1872: and it seemed necessary to show that Jevons' Theory of Interest, if interpreted as he interpreted Ricardo, is untenable.

APP. I, 3
Other
critics

have imitated Ricardo's carelessness in exposition as to the element of time, and have failed to subvert his central doctrine.

APPENDIX J¹.

✓ THE DOCTRINE OF THE WAGES-FUND.

APP. J, 1.
Early in last century special causes emphasized the dependence of labour on the aid of capital,

§ 1. At the beginning of last century, great as was the poverty of the English people, the peoples of the Continent were poorer still. In most of them population was sparse, and therefore food was cheap; but for all that they were underfed, and could not provide themselves with the sinews of war. France, after her first victories, helped herself along by the forced contributions of others. But the countries of Central Europe could not support their own armies without England's aid. Even America, with all her energy and national resources, was not rich; she could not have subsidized Continental armies. The economists looked for the explanation; and they found it chiefly in England's accumulated capital, which, though small when judged by our present standard, was very much greater than that of any other country. Other nations were envious of England, and wanted to follow in her steps; but they were unable to do so, partly indeed for other reasons, but chiefly because they had not capital enough. Their annual income was required for immediate consumption. There was not in them a large class of people who had a good store of wealth set by, which they did not need to consume at once, and which they could devote to making machines and other things that would aid labour, and would enable it to produce a larger store of things for future consumption. A special tone was given to their arguments by the scarcity of capital everywhere, even in England; by the growing dependence of labour on the aid of machinery; and lastly, by the folly of some followers of Rousseau, who were telling the working classes that they would be better off without any capital at all.

In consequence, the economists gave extreme prominence to the statements; first, that labour requires the support of capital, i.e. of good, clothes, etc., that have been already produced; and secondly, that labour requires the aid of capital in the form of factories, stores

¹ See above, p. 544.

of raw material, etc. Of course the workman might have supplied his own capital, but in fact he seldom had more than a little store of clothes and furniture, and perhaps a few simple tools of his own—he was dependent for everything else on the savings of others. The labourer received clothes ready to wear, bread ready to eat, or the money with which he could purchase them. The capitalist received a spinning of wool into yarn, a weaving of yarn into cloth, or a ploughing of land, and only in a few cases commodities ready for use, coats ready to be worn, or bread ready to be eaten. There are, no doubt, important exceptions, but the ordinary bargain between employers and employed is that the latter receives things ready for immediate use and the former receives help towards making things that will be of use hereafter. These facts the economists expressed by saying that all labour requires the support of capital, whether owned by the labourer or by someone else; and that when anyone works for hire, his wages are, as a rule, advanced to him out of his employer's capital—advanced, that is, without waiting till the things which he is engaged in making are ready for use. These simple statements have been a good deal criticized, but they have never been denied by anyone who has taken them in the sense in which they were meant.

The older economists, however, went on to say that the amount of wages was limited by the amount of capital, and this statement cannot be defended; at best it is but a slovenly way of talking. It has suggested to some people the notion that the total amount of wages that could be paid in a country in the course of, say a year, was a fixed sum. If by the threat of a strike, or in any other way, one body of workmen got an increase of wages, they would be told that in consequence other bodies of workmen must lose an amount exactly equal in the aggregate to what they had gained. Those who have said this have perhaps thought of agricultural produce, which has but one harvest in the year. If all the wheat raised at one harvest is sure to be eaten before the next, and if none can be imported, then it is true that if anyone's share of the wheat is increased, there will be just so much less for others to have. But this does not justify the statement that the amount of wages payable in a country is fixed by the capital in it, a doctrine which has been called "the vulgar form of the Wages-fund theory¹."

§ 2. 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

¹ These three paragraphs are reproduced from a paper written for the *Co-operative Annual*, and reprinted in the *Report of the Industrial Remuneration Conference*, 1885, which contained the outlines of the central argument of the first two chapters of Book VI.

APP. J, 2.

but this dependence was exaggerated by some careless expressions.

Mill attempted to discuss wages before he had reached

APP. J, 2.
the theory
of value.

exercised 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, as distinguished from that in which he wrote his *Essays on Unsettled Questions*; 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 economic science 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).

He was thus drawn on to an incomplete statement; and the correction of it in his fourth Book has not been generally noticed;

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 recognized this great truth, he would not have been drawn on to appear to substitute, as he did in his second Book, the statement of the problem of wages for its solution: but would have combined the description and analysis in his second Book, with the short but profound study of the causes that govern the distribution of the national dividend, given in his fourth Book; and the progress of economics would have been much hastened.

As it was, when his friend Thornton, following in the wake of Longe, Cliffe Leslie, Jevons and others, convinced him that the phrases in his second Book were untenable, he yielded too much; and overstated the extent of his own past error and of the concessions which he was bound to make to his assailants. He said (*Dissertations*, Vol. iv. p. 46): "There is no law of nature making it inherently impossible for wages to rise to the point of absorbing not only the funds which he (the employer) had intended to devote to carrying on his business, but the whole of what he allows for his private expenses beyond the necessities of life. The real limit to the rise is the practical consideration how much would ruin him, or drive him to abandon the business, not the inexorable limits of the Wages-fund." He did not make it clear whether this statement refers to immediate or ultimate effects, to short periods or long: but in either case it appears untenable.

APP. J, 2.
partly because he took a less scientific position in his answers to Thornton.

As regards long periods the limit is put too high: for wages could not rise permanently so as to absorb nearly as large a share of the national dividend as is here indicated. And for short periods, it is not put high enough: for a well-organized strike at a critical juncture may force from the employer for a short time more than the whole value of his output, after paying for raw material during that time; and thus make his gross profits for the time a negative quantity. And indeed the theory of wages whether in its older or newer form has no direct bearing on the issue of any particular struggle in the labour market: that depends on the relative strength of the competing parties. But it has much bearing on the general policy of the relation of capital to labour; for it indicates what policies do, and what do not, carry in themselves the seeds of their own ultimate defeat; what policies can be maintained, aided by suitable organizations; and what policies will ultimately render either side weak, however well organized.

The bearing of the theory of wages on the issue of particular trade conflicts is indirect and remote.

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 succeeded in avoiding the old pitfalls, he did so only by explaining away so much which is characteristic of the doctrine, that there is very little left in it to justify its title. He states however (p. 203) that "the rate of wages, other things being equal, varies inversely with the supply of labour." His argument is valid in regard to the immediate result of a sudden great increase in the supply of labour. But in the ordinary course of the growth of population there results simultaneously, not only some increase in the supply of capital, but also greater subdivision of labour, and more efficiency. His use of the term "varies inversely" is misleading. He should have said "varies for the time at least in the opposite direction." He goes on to derive an "unexpected consequence," that an increase in the supply of labour, when it is of a kind to be used in conjunction with fixed capital and raw material, would cause the Wages-fund to undergo "diminution as the number who are to share it

Cairnes explained away the crudities of the wages-fund doctrine in its extreme forms;

but his position is not clear.

APP. J, 3. is increased." But that result would follow only if the aggregate of wages were not influenced by the aggregate of production; and in fact this last cause is the most powerful of all those which influence wages.

The wages-fund doctrine relates only to the demand side of the question.

§ 3. It may be noticed that the extreme forms of the Wages-fund theory represent wages as governed entirely by demand; though the demand is represented crudely as dependent on the stock of capital. But some popular expositors of economics appear to have held at the same time both this doctrine and the Iron law of wages, which represents wages as governed rigidly by the cost of rearing human beings. They might of course have softened each of them and then worked the two into a more or less harmonious whole; as Cairnes did later. But it does not appear that they did so.

It was applied in support of some important truths.

The proposition that *Industry is limited by capital*, was often interpreted so as to make it practically convertible with the Wages-fund theory. It can be explained so as to be true: but a similar explanation would make the statement that "capital is limited by industry" equally true. It was however used by Mill chiefly in connection with the argument that the aggregate employment of labour cannot generally be increased by preventing people, by protective duties or in other ways, from satisfying their wants in that manner which they would prefer. 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 as neither labour nor capital gets any new advantage over the other in bargaining for the distribution of the dividend, neither can benefit by such legislation.

but they can be defended without it.

Symmetry of some of the relations between capital and labour.

This doctrine may be inverted; so as to assert that the labour required to give effect to capital in a new industry created by protective duties must have been withdrawn or withheld from some other, in which it gave, or would have given, effect to probably about the same quantity of capital as in its new occupation. But this statement though equally true would not appeal with equal force to the minds of ordinary people. For as the buyer of goods is commonly regarded as conferring a special benefit on the seller, though in fact the services which buyers and sellers render to one another are in the long run co-ordinate; so the employer is commonly regarded as conferring a special benefit on the worker, whose labour he buys, though in the long

run the services which the employers and employees render to one another are co-ordinate. The causes and consequences of this pair of facts will occupy us much at later stages of our inquiry.

Some German economists have argued that the resources with which the employer pays wages come from consumers. But this appears to involve a misapprehension. It might be true of an individual employer if the consumer paid him in advance for what he produced: but in fact the rule goes the other way; the consumer's payments are more often in arrear, and merely give deferred command over ready commodities in return for ready commodities. It may be admitted that if the producer could not sell his goods he might not be able for the time to hire labour; but that would only mean that the organization of production was partially out of gear: a machine may stop if one of its connecting rods gets out of order, but that does not mean that the driving force of the machine is to be found in the rod.

Nor again is the amount which the employer pays as wages at any time governed by the price which consumers *do* pay him for his wares; though it generally is largely influenced by his expectations of the price they *will* pay him. It is indeed true that in the long run and under normal conditions, the prices which consumers do pay him and those which they will pay him are practically the same. But when we pass from the particular payments of an individual employer to the normal payments of employers generally—and it is really only with these latter that we are now concerned—consumers cease to form a separate class, for every one is a consumer. The national dividend goes exclusively to consumers in the broad sense in which wool or a printing press is said to go into consumption when it is transferred from the warehouse or engineering works in which it has rested, to a woollen manufacturer or a printer, and these consumers are also the producers, that is, the owners of the agents of production, labour, capital and land. Children and others who are supported by them, and the Government which levies taxes on them¹, do but expend part of their incomes for them. To say therefore that the resources of employers generally are ultimately drawn from those of consumers generally, is undoubtedly true. But it is only another way of saying that all resources have been parts of the national dividend, which have been directed into forms suitable for deferred, instead of immediate use; and if any of them are now applied to any other purpose than immediate consumption, it is in the expectation that their place will be taken (with increment or profit) by the incoming flow of the national dividend².

The resources of individual employers are returned to them through sales to customers.

But in a broad view all are consumers; and to say that the resources of producers come from consumers is but to say that they come from the national dividend.

¹ Unless indeed we reckon the security and other benefits which Government provides as separate items of the national income.

² Considerable light has been thrown on the subject of the Wages-fund by Walker's writings, and the controversies connected with them. The instances which he has collected of employees rendering their services in advance of payment bear effectively on some turns of the controversy, but not on its main issue. Cannan's *Production and Distribution, 1776-1848*, contains much acute,

APP. J, 4. The 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 contains a little truth. For the price of the commodities includes profits of manufacturer and middleman; and if the purchaser acts as employer, he slightly diminishes the demand for the services of the employing class, and increases the demand for labour as he might have done by buying, say, hand-made lace instead of machine-made lace. But this argument assumes that the wages of labour will be paid, as in practice they commonly are, while the work is proceeding; and that the price of the commodities will be paid, as in practice it commonly is, after the commodities are made: and it will be found that in every case which Mill 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. 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 expenditure¹.

The benefits which wage-earners derive from the increase of wealth not owned by them and not in the form of trade capital.

§ 4. Throughout the whole discussion of the national dividend the relations in which the kitchen apparatus of a hotel and those of a private house stand to the employment of cooks have been implicitly treated as on a like footing. That is to say the capital has been regarded broadly: it has not been limited to mere "trade capital." But a little more may be said on this subject.

It is indeed often thought that, though those workers who have little or no accumulated wealth of their own, have much to gain by an increase of the capital in that narrower sense of the term in which it is nearly convertible with trade capital that supports and aids them in their work; yet they have little to gain from an increase of other forms of wealth not in their own hands. No doubt there are a few kinds of wealth the existence of which scarcely affects the working classes; while they are directly affected by almost every increase of (trade) capital. For the greater part of it passes through their hands

if sometimes too severe, criticism of the earlier wage theories. A more conservative attitude is taken in Taussig's weighty *Capital and Wages*; to which the English reader may be specially referred for a fuller account and criticism of the German doctrines mentioned in the text.

¹ See the Appendix to Book IV. of Newcomb's *Political Economy*.

as implements or materials of their work; while a considerable part is directly used or even consumed by them¹. It seems therefore that the working classes must necessarily gain when other forms of wealth become trade capital and *vice versa*. But it is not so. If private people generally gave up keeping carriages and yachts, and hired them out from capitalist undertakers, there would result a smaller demand for hired labour. For part of what would have been paid as wages would go as profits to a middleman².

It may be objected that if other forms of wealth take the place of trade capital on a large scale, there may be a scarcity of the things needed to aid labour in its work and even of those needed to support it. This may be a real danger in some Oriental countries. But in the western world, and especially in England, the total stock of capital is equal in value to the aggregate of the commodities consumed by the working classes during many years: and a very small increase in the demand for those forms of capital, that minister directly to labour's needs, relatively to other forms, would quickly bring forward an increased supply of them, either imported from some other part of the world, or specially produced to meet the new demand. There is therefore no necessity to trouble ourselves much on this score. If the marginal efficiency of labour is kept high, its net product will be high; and so will therefore its earnings: and the constantly flowing stream of the national dividend will divide itself up in corresponding proportions, giving always an adequate supply of commodities for immediate consumption by the workers, and assigning to the production of those commodities an adequate stock of implements. When the general conditions of demand and supply have decided what part of the national dividend the other classes of society are free to spend as they will; and when the inclinations of those classes have decided the mode in which they will distribute their expenditure between present and deferred gratifications, etc., it matters not to the working classes whether orchids come from the private conservatories, or from the glass houses which belong to professional florists, and which are therefore trade capital.

¹ At all events according to most definitions. There are some indeed who confine capital to "intermediate goods," and must therefore exclude hotels, and lodging-houses, and workmen's cottages, at all events as soon as they are used. But grave objections to the adoption of this definition have already been indicated in Appendix E, 4.

² See above, p. 785. Again, an increased use of brass furniture that needs much cleaning, and generally of modes of living that require the assistance of many indoor and outdoor servants, operates on the demand for labour in the same way as the use of hand-made goods in place of goods made by expensive machinery and other fixed capital. It may be true that the employment of a great number of domestic servants is an ignoble and wasteful use of a large income: but there is no other equally selfish method of spending it which tends so directly to increase the share of the national dividend which goes to the working classes.

APPENDIX K.

CERTAIN KINDS OF SURPLUS.

APP. K, I.

The nation's income is completely distributed; but yet everyone gets a surplus of satisfaction as consumer over the worth to him of his payments,

§ 1. WE have next to make some study of the relations in which different kinds of surplus stand to one another, and to the national income. The study is difficult, and it has little practical bearing; but it has some attractions from the academic point of view.

While the national income or dividend is completely absorbed in remunerating the owner of each agent of production at its marginal rate, it yet generally yields him a surplus which has two distinct, though not independent sides. It yields to him, as consumer, a surplus consisting of the excess of the total utility to him of the commodity over the real value to him of what he paid for it. For his marginal purchases, those which he is only just induced to buy, the two are equal: but those parts of his purchases for which he would gladly have paid a higher price rather than go without them, yield him a surplus of satisfaction: a true net benefit which he, as consumer, derives from the facilities offered to him by his surroundings or conjuncture. He would lose this surplus, if his surroundings were so altered as to prevent him from obtaining any supplies of that commodity, and to compel him to divert the means which he spends on that to other commodities (one of which might be increased leisure) of which at present he does not care to have further supplies at their respective prices.

and other surpluses accrue generally to workers, and to savers.

Another side of the surplus which a man derives from his surroundings is better seen when he is regarded as producer, whether by direct labour, or by the accumulated, that is acquired and saved, material resources in his possession. As a worker, he derives a *worker's surplus*, through being remunerated for all his work at the same rate as for that last part, which he is only just willing to render for its reward; though much of the work may have given him positive pleasure. As capitalist (or generally as owner of accumulated wealth in any form) he derives a *saver's surplus* through being remunerated for all his saving, that is waiting, at the same rate as for that part which he is only just induced to undergo by the reward to be got for it. And he generally is remunerated at that rate even though he would still have

made some savings if he had been compelled to pay for their safe keeping, and had reaped a negative interest from them¹. APP. K, 1.

These two sets of surpluses are not independent: and it would be easy to reckon them up so as to count the same thing twice. For when we have reckoned the producer's surplus at the value of the general purchasing power which he derives from his labour or saving, we have reckoned implicitly his consumer's surplus too, provided his character and the circumstances of his environment are given. This difficulty might be avoided analytically; but in no case would it be practically possible to estimate and add up the two series. The consumer's surplus, the worker's surplus, and the saver's surplus, which anyone is capable of deriving from his surroundings, depend on his individual character. They depend in part on his general sensibility to the satisfactions and dissatisfactions of consumption and of working and waiting severally; and in part also on the elasticity of his sensibilities, that is, on the rates at which they change with an increase of consumption, of work and of waiting respectively. Consumer's surplus has relation in the first instance to individual commodities, and each part of it responds directly to changes in the conjuncture affecting the terms on which that commodity is to be had: while the two kinds of producer's surplus appear always in terms of the general return that the conjuncture gives to a certain amount of purchasing power. The two kinds of producer's surplus are independent and cumulative, and they stand out distinct from one another in the case of a man working and saving things for his own use. The intimate connection between both of them and consumer's surplus is shown by the fact that, in estimating the weal and woe in the life of a Robinson Crusoe, it would be simplest to reckon his producer's surpluses on such a plan as to include the whole of his consumer's surplus.

A great part of a worker's earnings are of the nature of a deferred return to the trouble and expense of preparing him for his work; and there is therefore a great difficulty in estimating his surplus. Nearly all his work may be pleasurable; and he may be earning a good wage for the whole of it; but in reckoning up the balance of human weal and endurance we must set off against this much effort and sacrifice endured by his parents and by himself in past time: but we cannot say clearly how much. In a few lives there may be a balance of evil: but there is reason to think that there is a balance of good in most lives, and a large balance in some. The problem is as much philosophical as economic; it is complicated by the fact that man's activities are ends in themselves as well as means of production, and also by the difficulty of dividing clearly the immediate and direct (or prime) cost of human effort from its total cost; and it must be left imperfectly solved². These surpluses must be distinguished from the excess of earnings of an appliance of production over the prime cost of its work.

¹ This point was emphasized by Gossen and Jevons. See also Clark's *Surplus Gains of Labour*.

² See VI. v.

APP. K, 2.

As regards material agents such additional surplus vanishes when all outlays are reckoned in;

with a partial exception in the case of land.

§ 2. The case is in some respects simpler when we pass to consider the earnings of material appliances for production. The work and the waiting by which they have been provided, yield their own worker's and waiter's surplus just mentioned, and in addition a surplus (or quasi-rent) of the excess of total money returns over direct outlay; provided we confine our attention to short periods only. But for long periods, that is, in all the more important problems of economic science, and especially in the problems discussed in this chapter, there is no distinction between immediate outlay and total outlay. And in the long run the earnings of each agent are, as a rule, sufficient only to recompense at their marginal rates the sum total of the efforts and sacrifices required to produce them. If less than these marginal rates had been forthcoming the supplies would have been diminished; and on the whole therefore there is in general no extra surplus in this direction.

This last statement applies in a sense to land which has been but recently taken up; and possibly it might apply to much land in old countries, if we could trace its records back to their earliest origins. But the attempt would raise controversial questions in history and ethics, as well as in economics; and the aims of our present inquiry are prospective rather than retrospective. Looking forward rather than backward, and not concerning ourselves with the equity and the proper limits of the present private property in land, we see that that part of the national dividend which goes as earnings of land is a surplus in a sense in which the earnings from other agents are not a surplus.

To state from the point of view of this chapter a doctrine which has been discussed at length in V. VIII.—XI:—All appliances of production, whether machinery, or factories with the land on which they are built, or farms, are alike in yielding large surpluses over the prime costs of particular acts of production to a man who owns and works them: also in yielding him normally no special surplus in the long run above what is required to remunerate him for his trouble and sacrifice and outlay in purchasing and working them (no special surplus, as contrasted with his general worker's and waiter's surplus). But there is this difference between land and other agents of production, that from a social point of view land yields a permanent surplus, while perishable things made by man do not. The more nearly it is true that the earnings of any agent of production are required to keep up the supply of it, the more closely will its supply so vary that the share which it is able to draw from the national dividend conforms to the cost of maintaining the supply: and in an old country land stands ~~in an exceptional position~~, because its earnings are not affected by this ~~cause~~. The difference between land and other durable agents is however mainly one of degree: and a great part of the interest of the study of the rent of land arises from the illustrations which it affords of a great principle that permeates every part of economics.

APPENDIX L¹.

RICARDO'S DOCTRINE AS TO TAXES AND 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."

APP. L.

Malthus justly complains of Ricardo's inconsistency in paying more attention to proximate than ultimate results as regards rent and improvements in agriculture.

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

¹ Compare VI. ix. 4.

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But let us follow Ricardo and assume the demand for Corn to be fixed; then a tax on it would not affect rents.

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 an immediate falling-off in the demand for some kinds of produce, if not for the staple cereals: and therefore the value of Corn, *i.e.* produce in general, 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 on page 158 suggest at once translations of these 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 ceases to deal with results which are "immediate," and belong to a "short period" relatively to the growth of population; and passes to those which are "ultimate," and belong 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.

On the same assumption improve-

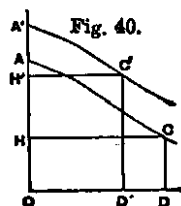
We may now pass to his argument with regard to the influence of improvements in the arts of agriculture, which he divides into two classes. A special scientific interest attaches to his treatment of the

first, which consists of those improvements that "I can obtain the same produce with less capital, and without disturbing the difference between the productive powers of the successive portions of capital"; of course neglecting for the purpose of his general argument the fact that any given improvement may be of greater service to one particular piece of land than another. (See above, Book IV. ch. III. § 4.) 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.

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which in-
crease the
return to
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a double
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This may be made clear by the adjoining figure; in which curve AO

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

¹ Ch. II. *Collected Works*, p. 42. Comp. Cannan's *Production and Distribution*, 1776—1848, pp. 325—6. Ricardo's distinction between his two classes of improvements is not altogether happy, and need not be considered here.

APP. L.

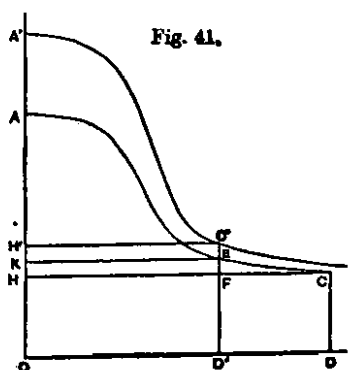
by the distance AA' . If, therefore, there were an unlimited demand for corn, so that the old number of doses, OD , could be profitably applied, the aggregate Corn surplus would remain the same as before the change. But in fact such an immediate increase of production could not be profitable; and therefore 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.

Mill substituted equal proportions for equal amounts, and then tried to establish the same result, but incorrectly.

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 out 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 numbers he chose for his illustration.

The adjoining figure tends to show that there is a class of economic problems which cannot be safely treated by anyone 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.

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(Mill assumes that the cultivated part of a country consists of three quantities 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 26½. 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 66½.)

Finally it may be noticed that Ricardo's paradox as to the possible effects of improvements on the rent of land is applicable to urban as well as agricultural land. For instance, the American plan of building stores sixteen stories high with steel frames, and served with elevators, may be supposed suddenly to become very efficient, economical and convenient in consequence of improvements in the arts of building, lighting, ventilation and the making of elevators. In that case the trading part of each town would occupy a less area than now; a good deal of land would have to revert to less remunerative uses; and the net result might possibly be a fall in the aggregate site values of the town.

Ricardo's
paradox
applies
to urban
land

MATHEMATICAL APPENDIX.

NOTE I. (p. 93). 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 marginal utility is measured by $\frac{du}{dx} \cdot \delta x$; while $\frac{d\mu}{dx}$ measures the *marginal degree* of utility. Jevons and some other writers use "Final utility" to indicate what Jevons elsewhere calls Final degree of utility. There is room for doubt as to which mode of expression is the more convenient; no question of principle is involved in the decision. Subject to the qualifications mentioned in the text $\frac{d^2u}{dx^2}$ is always negative.

NOTE II. (p. 96). 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 degree of 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 $\frac{dp}{dx} \cdot \frac{dp'}{dx'} = \frac{du}{dx} \cdot \frac{du'}{dx'}$.

(Compare Jevons' chapter on the *Theory of Exchange*, p. 151.)

Every increase in his means diminishes the marginal degree of utility of money to him; that is, $\frac{d^2\mu}{dm^2}$ is always negative.

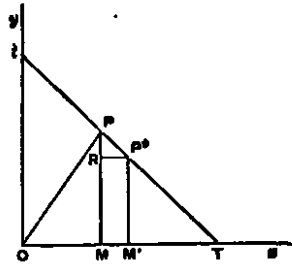
Therefore, the marginal utility to him of an amount x of a commodity remaining unchanged, an increase in his means increases $\frac{du}{dx} \div \frac{d\mu}{dm}$; i.e. it

increases $\frac{dp}{dx}$, that is, the rate at which he is willing to pay for further supplies of it. 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 III. (p. 103). 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

$$\begin{aligned} \frac{P'R}{OM} \div \frac{PR}{PM}, \text{ i.e. by } \frac{P'R}{PR} \times \frac{PM}{OM}; \\ \text{i.e. by } \frac{TM}{PM} \times \frac{PM}{OM}, \\ \text{i.e. by } \frac{TM}{OM} \text{ or by } \frac{PT}{Pt}. \end{aligned}$$



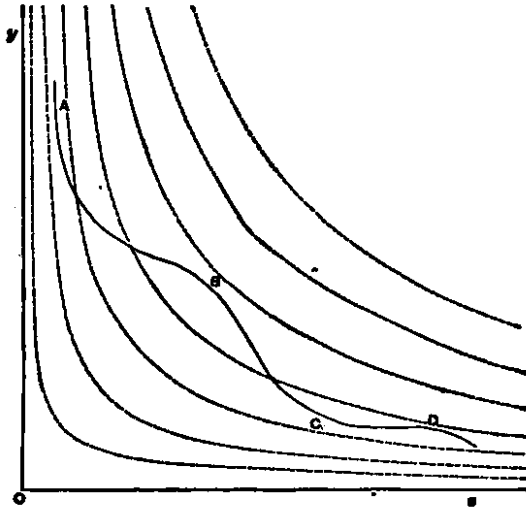
When the distance between P and P' is diminished indefinitely, PP' becomes the tangent; and thus the proposition stated on p. 103 is proved.

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 $\frac{dx}{x} \div \frac{-dy}{y}$, 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 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 $\frac{dx}{x} + n \frac{dy}{y} = 0$, i.e. $xy^n = C$.

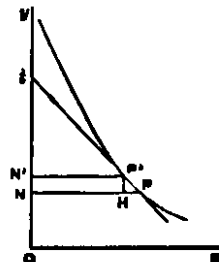
It is worth noting that in such a curve $\frac{dx}{dy} = -\frac{C}{y^{n+1}}$; that is, the proportion in which the amount demanded increases in consequence of a small fall in the price varies inversely as the $(n + 1)^{th}$ power of the price. In the case of the constant outlay curves it varies inversely as the square of the price; or, which is the same thing in this case, directly as the square of the amount.

NOTE IV. (p. 110). 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

$$\frac{PH}{P'N'} = \frac{PH}{P'H} \cdot \frac{P'H}{P'N'} = \frac{PN}{Nt} \cdot \frac{P'H}{P'N'} = \frac{P'H}{Nt}$$

since PN and $P'N'$ are equal in the limit.

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 .



If Nt were equal to c , a constant for all points of the curve, then the rate of increase would be constant and equal to $\frac{1}{c}$. In this case $-x \frac{dy}{dx} = c$ for all values of x ; that is, the equation to the curve is $y = a - c \log x$.

NOTE V. (p. 123). We have seen in the text that the rate at which future pleasures are discounted varies greatly from one individual to another. Let r be the rate of interest per annum, which must be added to a present pleasure in order to make it just balance a future pleasure, that will be of equal amount to its recipient, when it comes; then r may be 50 or even 200 per cent. to one person, while for his neighbour it is a negative quantity. Moreover some pleasures are more urgent than others; and it is conceivable even that a person may discount future pleasures in an irregular random way; he may be almost as willing to postpone a pleasure for two years as for one; or, on the other hand, he may object very strongly indeed to a long postponement, but scarcely at all to a short one. There is some difference of opinion as to whether such irregularities are frequent; and the question cannot easily be decided; for since the estimate of a pleasure is purely subjective, it would be difficult to detect them if they did occur. In a case in which there are no such irregularities, the rate of discount will be the same for each element of time; or, to state the same thing in other words, it will obey the exponential law. And if h be the future amount of a pleasure of which the probability is p , and which will occur, if at all, at time t ; and if $R = 1 + r$; then the present value of the pleasure is phR^{-t} . It must, however, be borne in mind that this result belongs to Hedonics, and not properly to Economics.

Arguing still on the same hypothesis we may say that, if w be the probability that a person will derive an element of happiness, Δh , from the possession of, say, a piano in the element of time Δt , then the present value of the piano to him is $\int_0^T wR^{-t} \frac{dh}{dt} dt$. 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 VI. (pp. 132, 3). 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

$$\int_0^a f(x) dx, \text{ where } a \text{ is the amount consumed.}$$

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 necessities: 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' surplus, 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 tea, the marginal utility of money to him would be less than it is, and he would get an element of consumers' surplus 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 neglected, on the assumption, which underlies our whole reasoning, that his expenditure on any one thing, as, for instance, tea, is only a small part of his whole expenditure. (Compare Book V. ch. II. § 3.) If, for any reason, it be desirable to take account of the influence which his expenditure on tea exerts on the value of money to him, it is only necessary to multiply $f(x)$ within the integral given above by that function of x (*i.e.* of the amount which he has already spent on tea) which represents the marginal utility to him of money when his stock of it has been diminished by that amount.

NOTE VII. (p. 134). Thus if a_1, a_2, a_3, \dots be the amounts consumed of the several commodities of which b_1, b_2, b_3, \dots are necessary for existence, if $y=f_1(x), y=f_2(x), y=f_3(x), \dots$ be the equations to their demand curves and if we may neglect all inequalities in the distribution of wealth; then the total utility of income, subsistence being taken for granted, might be represented by $\sum \int_b^a f(x) dx$, if we could find a plan for grouping together in one common demand curve all those things which satisfy the same wants, and are rivals; and also for every group of things of which the services are complementary (see Book V. ch. VI.). But we cannot do this: and therefore the formula remains a mere general expression, having no practical application. See footnote on pp. 131, 2; also the latter part of Note XIV.

NOTE VIII. (p. 135). If y be the happiness which a person derives from an income x ; and if, after Bernoulli, 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 $x \frac{dy}{dx} = K$, and $\therefore y = K \log x + C$ when K and C are constants. Further with Bernoulli let us assume that, a being the income which affords the *barest* necessaries of life, pain exceeds pleasure when the income is less than a , and balances it when the income equals a ; 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 gives to x the name *fortune physique*, and to y the name *fortune morale*.

Bernoulli 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 Bernoulli'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. 135). The argument that fair gambling is an economic blunder is generally based on Bernoulli'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

$$\phi(x) \text{ to } p\phi\{x+(1-p)y\} + (1-p)\phi(x-py).$$

This when expanded by Taylor's Theorem becomes

$$\phi(x) + \frac{1}{2}p(1-p)^2y^2\phi''\{x+\theta(1-p)y\} + \frac{1}{2}p^2(1-p)y^2\phi''(x-\theta py);$$

assuming $\phi''(x)$ to be negative for all values of x , this is always 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. 142). Following on the same lines as in Note I., let us take v to represent the disutility or discommodity of an amount of labour l , then $\frac{dv}{dl}$ measures the marginal degree of disutility of labour; and, subject to the qualifications mentioned in the text, $\frac{d^2v}{dl^2}$ is 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 $\Delta w \frac{d\mu}{dm} = \Delta v$, and $\frac{dw}{dl} \frac{d\mu}{dm} = \frac{dv}{dl}$.

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 w , v , and l ; and then both $\frac{d^2w}{dm dl}$, $\frac{d^2w}{dv dl}$ are always positive.

NOTE XI. (p. 249). If members of any species of bird begin to adopt aquatic habits, every increase in the webs between the toes—whether coming about gradually by the operation of natural selection, or suddenly as a sport,—will cause them to find their advantage more in aquatic life, and will make their chance of leaving offspring depend more on the increase of the web. So that, if $f(t)$ be the average area of the web at time t , then the rate of increase of the web increases (within certain limits) with every increase

in the web, and therefore $f''(t)$ is positive. Now we know by Taylor's Theorem that

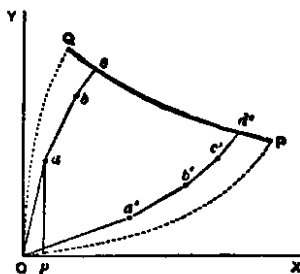
$$f(t+h) = f(t) + hf'(t) + \frac{h^2}{1.2} f''(t + \theta h);$$

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 eighteenth century and the beginning of the nineteenth, 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. This conclusion will remain valid even if further investigation confirms the suggestion, made by some Mendelians, that gradual changes in the race are originated by large divergences of individuals from the prevailing type. For economics is a study of mankind, of particular nations, of particular social strata; and it is only indirectly concerned with the lives of men of exceptional genius or exceptional wickedness and violence.

NOTE XII. (p. 331). 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 XII. bis (p. 793). In an article in the *Giornale degli Economisti* for February, 1891, Prof. Edgeworth draws the adjoining diagram, which represents the cases of barter of apples for nuts described on pp. 414—6. Apples are measured along Ox , and nuts along Oy ; $Op=4$, $ps=40$; and a represents the termination of the first bargain in which 4 apples have been exchanged for 40 nuts, in the case in which A gets the advantage at starting: b represents the second, and c the final stage of that case. On the other hand, a' represents the first, and b' , c' , d' the second, third, and final stages of the set of bargains in which B gets the advantage at starting. QP , the locus on which c and d' must both necessarily lie, is called by Prof. Edgeworth the *Contract Curve*.



Following a method adopted in his *Mathematical Psychics* (1891), he takes U to represent the total utility to A of apples and nuts when he has given up x apples and received y nuts, V the total utility to B of apples and nuts when he has received x apples and given up y nuts. If an additional

Δx apples are exchanged for Δy nuts, the exchange will be indifferent to A if

$$\frac{dU}{dx} \Delta x + \frac{dU}{dy} \Delta y = 0;$$

and it will be indifferent to B if $\frac{dV}{dx} \Delta x + \frac{dV}{dy} \Delta y = 0$. These, therefore, are the equations to the indifference curves OP and OQ of the figure respectively; and the contract curve which is the locus of points at which the terms of exchange that are indifferent to A are also indifferent to B has the elegant equation $\frac{dU}{dx} \div \frac{dU}{dy} = \frac{dV}{dx} \div \frac{dV}{dy}$.

If the marginal utility of nuts be constant for A and also for B , $\frac{dU}{dy}$ and $\frac{dV}{dy}$ become constant; U becomes $\Phi(a-x) + ay$, and V becomes $\Psi(a-x) + \beta y$; and the contract curve becomes $F(x) = 0$; or $x = C$; that is, it is a straight line parallel to Oy , and the value of $\Delta y : \Delta x$ given by either of the indifference curves, a function of C ; thus showing that by whatever route the barter may have started, equilibrium will have been found at a point at which C apples have been exchanged, and the final rate of exchange is a function of C ; that is, it is a constant also. This last application of Prof. Edgeworth's mathematical version of the theory of barter, to confirm the results reached in the text, was first made by Mr Berry, and is published in the *Giornale degli Economisti* for June, 1891.

Prof. Edgeworth's plan of representing U and V as general functions of x and y has great attractions to the mathematician; but it seems less adapted to express the every-day facts of economic life than that of regarding, as Jevons did, the marginal utilities of apples as functions of x simply. In that case, if A had no nuts at starting, as is assumed in the particular case under discussion, U takes the form

$$\int_0^x \phi_1(a-x) dx + \int_0^y \psi_1(y) dy;$$

similarly for V . And then the equation to the contract curve is of the form

$$\phi_1(a-x) \div \psi_1(y) = \phi_1(x) \div \psi_1(b-y);$$

which is one of the Equations of Exchange in Jevons' *Theory*, 2nd Edition, p. 108.

NOTE XIII. (p. 354). Using the same notation as in Note V., 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

$$H = \int_{T'}^T wR^{-t} \frac{dh}{dt} dt.$$

Let Δv be the element of effort that will be incurred by him in building the house in the interval of time Δt (between the time t and the time $t + \Delta t$), then the present value of the aggregate of effort 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, ω' , of its being required; and then V becomes $\int_0^{T'} \omega' R^{-t} \frac{dv}{dt} dt$.

If we transfer the starting-point to the date of the completion of the house, we have

$$H = \int_0^{T_1} \omega R^{-t} \frac{dh}{dt} dt \text{ and } V = \int_0^{T'} \omega' R^t \frac{dv}{dt} dt,$$

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' 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 Goossen's work, pointed out the objections to the plan followed by him (and Whewell) of substituting straight lines for the multifarious curves that represent the true characters of the variations of economic quantities.

NOTE XIV. (p. 357). Let a_1, a_2, a_3, \dots be the several amounts of different kinds of labour, as, for instance, wood-cutting, stone-carrying, earth-digging, etc., on the part of the man in question that would be used in building the house on any given plan; and $\beta, \beta', \beta'', \dots$, the several amounts of accommodation of different kinds such as sitting-rooms, bed-rooms, offices, etc. which the house would afford on that plan. Then, using V and H as in the previous note, $V, \beta, \beta', \beta''$ are all functions of a_1, a_2, a_3, \dots , and H being a function of $\beta, \beta', \beta'', \dots$ is a function also of a_1, a_2, a_3, \dots . We have, then, to find the marginal investments of each kind of labour for each kind of use.

$$\frac{dV}{da_1} = \frac{dH}{d\beta} \frac{d\beta}{da_1} = \frac{dH}{d\beta'} \frac{d\beta'}{da_1} = \frac{dH}{d\beta''} \frac{d\beta''}{da_1} = \dots$$

$$\frac{dV}{da_2} = \frac{dH}{d\beta} \frac{d\beta}{da_2} = \frac{dH}{d\beta'} \frac{d\beta'}{da_2} = \frac{dH}{d\beta''} \frac{d\beta''}{da_2} = \dots$$

These equations represent a balance of effort and benefit. The real cost to him of a little extra labour spent on cutting timber and working it up is just balanced by the benefit of the extra sitting-room or bed-room accommodation that he could get by so doing. If, however, instead of doing the work himself, he pays carpenters to do it, we must take V to represent, not his total effort, but his total outlay of general purchasing power. Then the rate of pay which he is willing to give to carpenters for further labour, his marginal demand price for their labour, is measured by $\frac{dV}{da}$; while $\frac{dH}{d\beta}, \frac{dH}{d\beta'}$ are the money measures to him of the marginal utilities of extra sitting-room and bed-room accommodation respectively, that is, his marginal demand prices for them; and $\frac{d\beta}{da}, \frac{d\beta'}{da}$ are the marginal efficiencies of carpenters' labour in providing these accommodations. The equations then state that

the demand price for carpenters' labour tends to be equal to the demand price for extra sitting-room accommodation, and also for extra bed-room accommodation and so on, multiplied in each case by the marginal efficiency of the work of carpenters in providing that extra accommodation, proper units being chosen for each element.

When this statement is generalized, so as to cover all the varied demand in a market for carpenters' labour, it becomes:—the (marginal) demand price for carpenters' labour is the (marginal) efficiency of carpenters' labour in increasing the supply of any product, multiplied by the (marginal) demand price for that product. Or, to put the same thing in other words, the wages of a unit of carpenters' labour tends to be equal to the value of such part of any of the products, to producing which their labour contributes, as represents the marginal efficiency of a unit of carpenters' labour with regard to that product; or, to use a phrase, with which we shall be much occupied in Book VI. ch. 1., it tends to be equal to the value of the "net product" of their labour. This proposition is very important and contains within itself the kernel of the demand side of the theory of distribution.

Let us then suppose a master builder to have it in mind to erect certain buildings, and to be considering what different accommodation he shall provide; as, for instance, dwelling-houses, warehouses, factories, and retail shop-room. There will be two classes of questions for him to decide: how much accommodation of each kind he shall provide, and by what means he shall provide it. Thus, besides deciding whether to erect villa residences, offering a certain amount of accommodation, he has to decide what agents of production he will use, and in what proportions: whether e.g. he will use tile or slate; how much stone he will use; whether he will use steam power for making mortar etc. or only for crane work; and, if he is in a large town, whether he will have his scaffolding put up by men who make that work a speciality or by ordinary labourers; and so on.

Let him then decide to provide an amount β of villa accommodation, an amount β' of warehouse, an amount β'' of factory accommodation, and so on, each of a certain class. But, instead of supposing him to hire simply $\alpha_1, \alpha_2, \dots$ quantities of different kinds of labour, as before, let us class his expenditure, under the three heads of (1) wages, (2) prices of raw material, and (3) interest on capital: while the value of his own work and enterprise makes a fourth head.

Thus let x_1, x_2, \dots be the amounts of different classes of labour, including that of superintendence, which he hires; the amount of each kind of labour being made up of its duration and its intensity.

Let y_1, y_2, \dots be amounts of various kinds of raw materials, which are used up and embodied in the buildings; which may be supposed to be sold freehold. In that case, the pieces of land on which they are severally built are merely particular forms of raw material from the present point of view, which is that of the individual undertaker.

Next let s be the amount of locking up, or appropriation of the employment, of capital for the several purposes. Here we must reckon in all forms of capital reduced to a common money measure, including advances for wages, for the purchase of raw material; also the uses, allowing for wear-and-tear etc. of his plant of all kinds: his workshops themselves and the

ground on which they are built being reckoned on the same footing. The periods, during which the various lockings up run, will vary; but they must be reduced, on a "compound rate," i.e. according to geometrical progression, to a standard unit, say a year.

Fourthly, let u represent the money equivalent of his own labour, worry, anxiety, wear-and-tear etc. involved in the several undertakings.

In addition, there are several elements, which might have been entered under separate heads; but which we may suppose combined with those already mentioned. Thus the allowance to be made for risk may be shared between the last two heads. A proper share of the general expenses of working the business ("supplementary costs," see p. 360) will be distributed among the four heads of wages, raw materials, interest on the capital value of the organization of the business (its goodwill etc.) regarded as a going concern, and remuneration of the builder's own work, enterprise and anxiety.

Under these circumstances V represents his total outlay, and H his total receipts; and his efforts are directed to making $H - V$ a maximum. On this plan, we have equations similar to those already given, viz.:-

$$\frac{dV}{dx_1} = \frac{dH}{d\beta} \cdot \frac{d\beta}{dx_1} = \frac{dH}{d\beta'} \cdot \frac{d\beta'}{dx_1} = \dots$$

$$\frac{dV}{dx_2} = \frac{dH}{d\beta} \cdot \frac{d\beta}{dx_2} = \frac{dH}{d\beta'} \cdot \frac{d\beta'}{dx_2} = \dots$$

.....

$$\frac{dV}{dy_1} = \frac{dH}{d\beta} \cdot \frac{d\beta}{dy_1} = \frac{dH}{d\beta'} \cdot \frac{d\beta'}{dy_1} = \dots$$

.....

$$\frac{dV}{dx} = \frac{dH}{d\beta} \cdot \frac{d\beta}{dx} = \frac{dH}{d\beta'} \cdot \frac{d\beta'}{dx} = \dots$$

$$\frac{dV}{du} = \frac{dH}{d\beta} \cdot \frac{d\beta}{du} = \frac{dH}{d\beta'} \cdot \frac{d\beta'}{du} = \dots$$

That is to say, the marginal outlay which the builder is willing to make for an additional small supply, δx_1 , of the first class of labour, viz. $\frac{dV}{dx_1} \delta x_1$, is equal to $\frac{dH}{d\beta} \cdot \frac{d\beta}{dx_1} \delta x_1$; i.e. to that increment in his total receipts H , which he will obtain by the increase in the villa accommodation provided by him that will result from the extra small supply of the first class of labour: this will equal a similar sum with regard to warehouse accommodation, and so on. Thus he will have distributed his resources between various uses in such a way that he would gain nothing by diverting any part of any agent of production—labour, raw material, the use of capital—nor his own labour and enterprise from one class of building to another: also he would gain nothing by substituting one agent for another in any branch of his enterprise, nor indeed by any increase or diminution of his use of any agent. From this point of view our equations have a drift very similar to the argument of Book III. ch. v. as to the choice between the different uses of the same thing. (Compare one of the most interesting notes (*f*) attached to Prof. Edgeworth's brilliant address to the British Association in 1889.)

There is more to be said (see V. XI. 1, and VI. I. 8) on the difficulty of interpreting the phrase the "net product" of any agent of production, whether a particular kind of labour or any other agent; and perhaps the rest of this note, though akin to what has gone before, may more conveniently be read at a later stage. The builder paid $\frac{dV}{dx_1} \delta x_1$ for the last element of the labour of the first group because that was its net product; and, if directed to building villas, it brought him in $\frac{dI}{d\beta} \cdot \frac{d\beta}{dx_1} \delta x_1$, as special receipts. Now if p be the price per unit, which he receives for an amount β of villa accommodation, and therefore $p\beta$ the price which he receives for the whole amount β ; and if we put for shortness $\Delta\beta$ in place of $\frac{d\beta}{dx_1} \delta x_1$, the increase of villa accommodation due to the additional element of labour δx_1 ; then the net product we are seeking is not $p\Delta\beta$, but $p\Delta\beta + \beta\Delta p$; where Δp is a negative quantity, and is the fall in demand price caused by the increase in the amount of villa accommodation offered by the builder. We have to make some study of the relative magnitudes of these two elements $p\Delta\beta$ and $\beta\Delta p$.

If the builder monopolized the supply of villas, β would represent the total supply of them: and, if it happened that the elasticity of the demand for them was less than unity, when the amount β was offered, then, by increasing his supply, he would diminish his total receipts; and $p\Delta\beta + \beta\Delta p$ would be a negative quantity. But of course he would not have allowed the production to go just up to an amount at which the demand would be thus inelastic. The margin which he chose for his production would certainly be one for which the negative quantity $\beta\Delta p$ is less than $p\Delta\beta$, but not necessarily so much less that it may be neglected in comparison. This is a dominant fact in the theory of monopolies discussed in Book V. chapter XIV.

It is dominant also in the case of any producer who has a limited trade connection which he cannot quickly enlarge. If his customers have already as much of his wares as they care for, so that the elasticity of their demand is temporarily less than unity, he might lose by putting on an additional man to work for him, even though that man would work for nothing. This fear of temporarily spoiling a man's special market is a leading influence in many problems of value relating to short periods (see Book V. chs. v. VII. XI.); and especially in those periods of commercial depression, and in those regulations of trade associations, formal and informal, which we shall have to study in the second volume. There is an allied difficulty in the case of commodities of which the expenses of production diminish rapidly with every increase in the amount produced: but here the causes that govern the limits of production are so complex that it seems hardly worth while to attempt to translate them into mathematical language. See V. XII. 2.

When however we are studying the action of an individual undertaker with a view of illustrating the normal action of the causes which govern the general demand for the several agents of production, it seems clear that we should avoid cases of this kind. We should leave their peculiar features to be analysed separately in special discussions, and take our normal illustration from a case in which the individual is only one of many who have efficient,

if indirect, access to the market. If $\beta\Delta p$ be numerically equal to $p\Delta\beta$, where β is the whole production in a large market; and an individual undertaker produced β' , a thousandth part of β ; then the increased receipt from putting on an additional man is $p\Delta\beta'$, which is the same as $p\Delta\beta$; and the deduction to be made from it is only $\beta'\Delta p$, which is a thousandth part of $\beta\Delta p$ and may be neglected. For the purpose therefore of illustrating a part of the general action of the laws of distribution we are justified in speaking of the value of the net product of the marginal work of any agent of production as the amount of that net product taken at the normal selling value of the product, that is, as $p\Delta\beta$.

It may be noticed that none of these difficulties are dependent upon the system of division of labour and work for payment; though they are brought into prominence by the habit of measuring efforts and satisfactions by price, which is associated with it. Robinson Crusoe erecting a building for himself would not find that an addition of a thousandth part to his previous accommodation increased his comfort by a thousandth part. What he added might be of the same character with the rest; but if one counted it in at the same rate of real value to him, one would have to reckon for the fact that the new part made the old somewhat less urgent need, of somewhat lower real value to him (see note 1 on p. 417). On the other hand, the law of increasing return might render it very difficult for him to assign its true net product to a given half-hour's work. For instance, suppose that some small herbs, grateful as condiment, and easily portable, grow in a part of his island, which it takes half a day to visit; and he has gone there to get small batches at a time. Afterwards he gives a whole day, having no important use to which he can put less than half a day, and comes back with ten times as great a load as before. We cannot then separate the return of the last half-hour from the rest; our only plan is to take the whole day as a unit, and compare its return of satisfaction with those of days spent in other ways; and in the modern system of industry we have the similar, but more difficult task of taking, for some purposes, the whole of a process of production as a single unit.

It would be possible to extend the scope of such systems of equations as we have been considering, and to increase their detail, until they embraced within themselves the whole of the demand side of the problem of distribution. But while a mathematical illustration of the mode of action of a definite set of causes may be complete in itself, and strictly accurate within its clearly defined limits, it is otherwise with any attempt to grasp the whole of a complex problem of real life, or even any considerable part of it, in a series of equations. For many important considerations, especially those connected with the manifold influences of the element of time, do not lend themselves easily to mathematical expression: they must either be omitted altogether, or clipped and pruned till they resemble the conventional birds and animals of decorative art. And hence arises a tendency towards assigning wrong proportions to economic forces; those elements being most emphasized which lend themselves most easily to analytical methods. No doubt this danger is inherent in every application not only of mathematical analysis, but of analysis of any kind, to the problems of real life. It is a

danger which more than any other the economist must have in mind at every turn. But to avoid it altogether, would be to abandon the chief means of scientific progress: and in discussions written specially for mathematical readers it is no doubt right to be very bold in the search for wide generalizations.

In such discussions it may be right, for instance, to regard H as the sum total of satisfactions, and V as the sum total of dissatisfactions (efforts, sacrifices etc.) which accrue to a community from economic causes; to simplify the notion of the action of these causes by assumptions similar to those which are involved, more or less consciously, in the various forms of the doctrine that the constant drift of these causes is towards the attainment of the *Maximum Satisfaction*, in the net aggregate for the community (see above pp. 470—5); or, in other words, that there is a constant tendency to make $H - V$ a maximum for society as a whole. On this plan the resulting differential equations of the same class as those which we have been discussing, will be interpreted to represent value as governed in every field of economics by the balancing of groups of utilities against groups of disutilities, of groups of satisfactions against groups of real costs. Such discussions have their place: but it is not in a treatise such as the present, in which mathematics are used only to express in terse and more precise language those methods of analysis and reasoning which ordinary people adopt, more or less consciously, in the affairs of every-day life.

It may indeed be admitted that such discussions have some points of resemblance to the method of analysis applied in Book III. to the total utility of particular commodities. The difference between the two cases is mainly one of degree: but it is of a degree so great as practically to amount to a difference of kind. For in the former case we take each commodity by itself and with reference to a particular market; and we take careful account of the circumstances of the consumers at the time and place under consideration. Thus we follow, though perhaps with more careful precautions, the practice of ministers of finance, and of the common man when discussing financial policy. We note that a few commodities are consumed mainly by the rich; and that in consequence their real total utilities are less than is suggested by the money measures of those utilities. But we assume, with the rest of the world, that as a rule, and in the absence of special causes to the contrary, the real total utilities of two commodities that are mainly consumed by the rich stand to one another in about the same relation as their money measures do: and that the same is true of commodities the consumption of which is divided out among rich and middle classes and poor in similar proportions. Such estimates are but rough approximations; but each particular difficulty, each source of possible error, is pushed into prominence by the definiteness of our phrases: we introduce no assumptions that are not latent in the practice of ordinary life; while we attempt no task that is not grappled with in a rougher fashion, but yet to good purpose, in the practice of ordinary life: we introduce no new assumptions, and we bring into clear light those which cannot be avoided. But though this is possible when dealing with particular commodities with reference to particular markets, it does not seem possible with regard to the innumerable economic elements that come within the all-embracing net of

the doctrine of Maximum Satisfaction. The forces of supply are especially heterogeneous and complex: they include an infinite variety of efforts and sacrifices, direct and indirect, on the part of people in all varieties of industrial grades: and if there were no other hindrance to giving a concrete interpretation to the doctrine, a fatal obstacle would be found in its latent assumption that the cost of rearing children and preparing them for their work can be measured in the same way as the cost of erecting a machine.

For reasons similar to those given in this typical case, our mathematical notes will cover less and less ground as the complexity of the subjects discussed in the text increases. A few of those that follow relate to monopolies, which present some sides singularly open to direct analytical treatment. But the majority of the remainder will be occupied with illustrations of joint and composite demand and supply which have much in common with the substance of this note: while the last of that series Note XXI goes a little way towards a general survey of the problem of distribution and exchange (without reference to the element of time), but only so far as to make sure that the mathematical illustrations used point towards a system of equations, which are neither more nor less in number than the unknowns introduced into them.

NOTE XIV. *bis* (p. 384). In the diagrams of this chapter (V. VI.) the supply curves are all inclined positively; and in our mathematical versions of them we shall suppose the marginal expenses of production to be determined with a definiteness that does not exist in real life: we shall take no account of the time required for developing a representative business with the internal and external economies of production on a large scale; and we shall ignore all those difficulties connected with the law of increasing return which are discussed in Book V. ch. XII. To adopt any other course would lead us to mathematical complexities, which though perhaps not without their use, would be unsuitable for a treatise of this kind. The discussions therefore in this and the following notes must be regarded as sketches rather than complete studies.

Let the factors of production of a commodity A be a_1, a_2 , etc.; and let their supply equations be $y = \phi_1(x)$, $y = \phi_2(x)$, etc. Let the number of units of them required for the production of x units of A be m_1x, m_2x, \dots respectively; where m_1, m_2, \dots are generally not constants but functions of x . Then the supply equation of A is

$$y = \Phi(x) = m_1\phi_1(m_1x) + m_2\phi_2(m_2x) + \dots \equiv \Sigma \{m\phi(m_x)\}.$$

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

$$y = F(x) - \{\Phi(x) - m_r\phi_r(m_r x)\}.$$

But in this equation y is the price, not of one unit of the factor but of m units; and to get an equation expressed in terms of fixed units let η be the price of one unit, and let $\xi = m_r x$, then $\eta = \frac{1}{m_r} \cdot y$ and the equation becomes

$$\eta = f_r(\xi) = \frac{1}{m_r} \left[F\left(\frac{1}{m_r} \xi\right) - \left\{ \Phi\left(\frac{1}{m_r} \xi\right) - m_r \phi_r(\xi) \right\} \right].$$

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 XV. (p. 386). Let the demand equation for knives be

$$y=F(x) \dots\dots\dots(1),$$

let the supply equation for knives be $y=\Phi(x) \dots\dots\dots(2),$

let that for handles be $y=\phi_1(x) \dots\dots\dots(3),$

and that for blades be $y=\phi_2(x) \dots\dots\dots(4),$

then the demand equation for handles is

$$y=f_1(x)=F(x)-\phi_2(x) \dots\dots\dots(5).$$

The measure of elasticity for (5) is $-\left\{\frac{xf_1'(x)}{f_1(x)}\right\}^{-1}$, that is,

$$-\left\{\frac{x(F'(x)-\phi_2'(x))}{F(x)-\phi_2(x)}\right\}^{-1};$$

that is, $\left\{-\frac{x(F'(x)-\phi_2'(x))}{F(x)-\phi_2(x)}\right\}^{-1}$.

This will be the smaller the more fully the following conditions are satisfied: (i) that $-\frac{x(F'(x)-\phi_2'(x))}{F(x)-\phi_2(x)}$, 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 $\frac{F(x)-\phi_2(x)}{f_1(x)}$ 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 XVI. (p. 387). 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 first represents the marginal demand price, and the second the marginal supply price of hops; and these two are therefore 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 XVII. (p. 388). 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 XVIII. (p. 389). Let a_1, a_2, \dots be joint products, m_1x, m_2x, \dots 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

$$y = f_1(x), \quad y = f_2(x), \dots$$

be their respective demand equations. Then in equilibrium

$$m_1 f_1(m_1 x) + m_2 f_2(m_2 x) + \dots = \phi(x).$$

Let x' be the value of x determined from this equation; then $f_1(m_1 x')$, $f_2(m_2 x')$ etc. are the equilibrium prices of the several joint products. Of course m_1, m_2 are expressed if necessary in terms of x' .

NOTE XIX. (p. 390). This case corresponds, *mutatis mutandis*, to that discussed in Note XVI. 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 XX. (p. 391). Let a_1, a_2, \dots be things which are fitted to subservise 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 $y=f(x)$; $x=x_1+x_2+\dots$, $y_1=y_2=\dots=y$. (The equations must be such that none of the quantities x_1, x_2, \dots 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 XXI. (p. 393). 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.

In a problem of joint demand we may suppose that there are n commodities A_1, A_2, \dots, 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 $a_1+a_2+a_3+\dots+a_n$; 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, (iv) 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, \dots . 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 β_1-1 ; also the number of supply equations is diminished by β_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 (γ_1-1) ; this deficiency is however made up by a new set of (γ_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 (δ_1-1) rivals. These are covered by (δ_1-1) supply equations for the rivals, and (δ_1-1) equations between the prices of the δ_1 rivals.

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. 565). Let Δx be the probable amount of his 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 rearing and training 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 were to assume that he would neither add to nor take from the material wellbeing of a country in which he stayed all his life, we should 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 assumes the simpler form, $\int_0^l R^{-t} \left(\frac{dx}{dt} - \frac{dy}{dt} \right) dt = 0$.

To say that Δx is the probable amount of his production in time Δt , is to put shortly what may be more accurately expressed thus:—let p_1, p_2, \dots be the chances that in time Δt he will produce elements of wealth $\Delta_1 x, \Delta_2 x, \dots$, where $p_1 + p_2 + \dots = 1$; and one or more of the series $\Delta_1 x, \Delta_2 x, \dots$ may be zero; then

$$\Delta x = p_1 \Delta_1 x + p_2 \Delta_2 x + \dots$$

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