

Evolutions of Thought in Economics

The evolution of a body of theory can be traced, I think, by means of the questions which, from time to time, it deems important or the essential frame of premises which it accepts. The choice of questions to be penetrated and the scheme-of-things to be assumed will be guided by the history which is being, and has lately been, experienced. The incentive for theory-making is the need to have one's mind at rest. To have some conception of how things hang together is re-assuring. Thus those questions will seem important which cause concern or apprehension. If things seem to have gone wrong, or if the visible state of affairs is different from what had been looked for, explanations will be sought and sequels imagined and their possibility tested in thought. The answers which are suggested for these formulated and unfamiliar questions will have to rest, however, on answers already tacitly accepted to older questions, perhaps more fundamental and even eternal, which few people actively consider, which are present only to especially restless and probing minds. In some historical eras, such basic questions are more easily forgotten than in others. History, that is to say, experience which we ourselves have passed through or which others have recorded, or which we can reconstruct from traces presently before our eyes, is the source of our questions whether of the newly-emerged and pressing kind or of the kind which express the ever-present frame of human existence.

The century which followed the Napoleonic war now seems an extraordinary and almost unique episode in the history of the world. Wars were rare, locally circumscribed, and short. In England, money retained unchanged, or even increased, its purchasing power. There were great technological advances, but they were not, perhaps, too frequent to be accommodated by the change of generations. This tranquil age (as we may call it in comparison with our own) gave to economic affairs some of the constancy or consistency of behaviour seen in the natural world. That natural world could be described by

systems of scientific "laws". It could be seen as a vast, steadily working, understandable machine. It was tempting and reasonable to suppose that a similar system of principles could be conceived or discovered for the world of business. This had indeed been the vision of economists from the outset. Quesnay's *Tableau Economique* encompassed the whole world of production and exchange, illustrated the "division of labour", and showed society as an *organism*, an entity in which the whole depended on each part and each part depended on the whole. Quesnay was physician to Louis XV, and was also interested in the principles of farming. Why should not the body politic, human society, find its analogue in the body of flesh and blood? In our day Quesnay's eighteenth century model has been succinctly re-expressed in terms of Leontief's input-output analysis:

The essential notion of Quesnay's *Tableau* was the specialisation of different groups of people to different tasks or roles, and the consequent need for these groups to exchange their services or their products. But a great question was left unanswered, or even unasked. How did it come about that goods and services, in their various kinds, exchanged for each other in particular quantities? This question took on a particular form or application, in which it appeared as the most important and, perhaps we may say, as the most sensitive and emotive of all economic questions. For if we can explain why a particular number of hours of some kind of work, or of the service of some natural resource or some machine, exchanges for particular quantities of the means of subsistence or enjoyment, we are on the way to explain why the total annual produce of a society is shared in such and such proportions amongst various groups of its members. This latter question, that of income distribution, is intimately linked with that of the exchange rates, the *prices*, of goods and services in terms of each other.

The question of income distribution, the question how a particular sharing of the total produce comes about, or the question of the principle on which that sharing ought to be made, is the one which loomed largest in the minds of many early economists and may be said, perhaps, to loom largest for ourselves. For the purpose and incentive of every kind of business, every activity of production and exchange, is acquisition, the gaining of the means of survival, comfort and enjoyment. And it is needless to argue that the question how much can be acquired, in this way or that, is an unremitting pre-occupation. Towards the end of the nineteenth century, the puzzle of

income distribution seemed at last to find an incisive answer. The means of that answer was peculiarly interesting. It was an application of the differential calculus, an application which economists call the method of small increments, or the marginal principle. It says that action of a particular kind will be carried to that pitch or scale where a small further step would bring more loss than gain of satisfaction, more drawback than advantage. For example, a housewife will do best for her family by so distributing the weekly expenditure over various goods that it makes little difference to the family's general comfort whether the final florin goes on tea, butter or electricity, and a bread-winner will prefer such weekly hours of work that an extra hour would tire him more than the proceeds would be worth. When the yearly number of man-hours, of acre-hours and of machine-hours of various kinds are each of them such that one extra unit would only just increase the yearly product by enough to pay its wage, then, if the list of those "factors of production" is complete, and if each of the quantities employed of them is finely sub-divisible, it can be shown that if, for each kind of factor, we multiply its employed number of units by its wage per unit, and add together the resulting total wage bills, the result of this summation will be equal to the total yearly produce. This theorem, which as a mathematical abstraction is due to Euler, provided the clinching element and crowning triumph of the Theory of Value and Distribution, which explained, on a single and simple principle, the prices of goods and services in terms of each other, the mode of allocation of quantities of each means of production to this and that industry, and the mode of sharing the total annual produce of all industries amongst the providers of these means. One further assumption was recognised as needful in order to validate this conception. Perfect competition, so great a multiplicity of such small firms in each industry that no one firm by any change of output within its capacity can affect the price, ensures that an industry's output can be measured indifferently either in physical volume or in value. By this assumption the theoretician is absolved from having to make two theories of distribution, one for a money-using and one for a non-money using economy. When thus completed, it is not surprising that a body of thought of such majestic compass and omniscient application, exhibiting such a pervasive unity and simplicity of principle and, in consequence, such arresting intellectual beauty, should have seemed to close the door upon all questions and leave only minor refinements still to be made. It is not even

surprising that the economic earthquakes of our century, the sweeping away of the orderly and stable Victorian world, the immense accelerations of technological change and the bewilderment of administrators in face of these events, should in large measure have left the edifice of neo-classical value-theory still standing in so many able minds. That edifice, the conception of General Equilibrium, the expression and effect of general prereconciliation of choices of action, still seems to many the ideal illuminator, the lamp which we need only refine still further and make yet more precise and subtle, for its rays to penetrate everywhere into all corners of our field. The situation is a strange one. The unshakable citadel seems to have become a refuge, waiting for the storm to subside, claiming still a basic validity, garrisoned still by the majority of the profession of economics. Yet even in the nineteenth century, one of the chief architects of the "marginalist" theory of value insisted on its difficulties and deceptions.

In his *Principles of Economics* Alfred Marshall sought, by observing the evolution of English productive and commercial society during a particular historical era, to arrive at some laws of such evolution that should be general and permanent in some degree. It was, he said, the nature and mode of this unending process which economists ought to be concerned with: "The main concern of economics is thus with human beings who are impelled, for good and evil, to change and progress. Fragmentary static 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" (Preface to the eighth edition, page XV). With this policy, Marshall founded a Cambridge tradition in economics. Marshall himself was a Wrangler (First Class Honours man) in the Cambridge Mathematical Tripos, so were Ralph Hawtrey and Maynard Keynes. Yet all three of these keen minds cast their thoughts essentially in literary form, all three were lucid, lively and engaging writers who threw a rich mantle of description and suggestion over the bony frame of logic; so did F.Y. Edgeworth and Denis Robertson. Keynes (until the *General Theory*) leads his reader on with a seductive ease of exposition. Denis Robertson showed how economics could be presented with, it has been said, "a heaven-sent lightness of touch". Marshall's own work is pervaded by a deep humane idealism. He drew upon the thought of philosophers, for example, Hegel, Comte and Herbert Spencer. His

width of sympathy and open mind exposed him sometimes to a charge of lack of rigour. "Jevons carved in stone, Marshall knitted in wool" Keynes said. It is true that Marshall's urge to unify and nucleify ideas sometimes led him to endow his special terms with a skein of different meanings. The Principle of Continuity set forth in the Preface of the first edition of the *Principles* refers not only to many types of case where it may be tempting, but is not justifiable, to make sharp distinctions between categories, but covers also the mathematical notion of continuously variable quantities and functions. The two meanings which Marshall thus gives to "continuity" seem quite distinct.

Marshall knew that the economic world is one. So is the earth's atmosphere. Yet we know that the atmosphere is always in flux, its effects take time to develop their power and transmit themselves about the earth. Marshall said that time "is the centre of the chief difficulty of almost every economic problem". He spoke frequently of the business man as being impelled and guided in action by what he *expects*. To make the idea of expectation central to the theory of economic action, or the theory of action in the most general sense, is to recognise that time is not a mere space or dimension, it is not a range of locations all of them equally capable of being visited and inspected. Time-to-come is the undiscovered country. Marshall's relatively tranquil era did not often subject the business man to such upheavals as our century has seen: the wiping-out of the value of currencies, the unemployment in Western countries of tens of millions of people, social and political turmoil and undreamt-of technological change. Marshall, therefore, did not greatly emphasise the business man's problem of uncertainty. He refers to the possibility of the capital invested in a business being entirely lost, he speaks continually of the business man's essential task of estimating the costs of production of specific goods and the price which these goods may eventually fetch. The uncertainties of business are implicit in his account, but they are not given high explicit prominence. Yet his book is an account of business as an aspect of life, of the strenuous, exacting human predicament, of the unremitting need for attention, calculation, adaptation. In this his book differs essentially from those which describe an ultimate, or a timeless, state of universal perfect adjustment of everything to everything else. The economic world is one, but to describe it as a general equilibrium does not explain its character of a channel for the surging current of history.

Keynes's stricture on Marshall's style of reasoning does not do justice to the intractable and elusive task which Marshall had set himself. Marshall was a close observer of an evolving industrial and social scene. He sought to draw from this segment of living and contemporary history an insight into the nature and operation of the process of history itself in its economic aspects, the permanent and basic social physiology which it manifested. It is a typical irony of human experience that Keynes himself came to recognise our essential, irremediable ignorance of the content of time-to-come, in all but a very limited range of respects, as the prime character of the business man's environment. Marshall was an exact reasoner where exactness was possible. He was an early user in economic theory of what he called "the methods of the science of small increments", the differential calculus, and had a great admiration for the pioneer of that method in economics, Augustin Cournot, whose great classic book appeared in 1838. Marshall's recommended and adopted policy of thought in economics, his judgement of what is possible in the study of human affairs, is exceedingly interesting in itself. "The economist needs the three great intellectual faculties, perception, imagination and reason: and most of all he needs imagination, to put him on the track of those causes of visible events which are remote or lie below the surface, and of those effects of visible causes, which are remote or lie below the surface". "His main reliance must be on disciplined imagination". (Book I, Chapter iv of the first edition).

A timeless system of general pre-reconciliation of choices has no use for money. The goods and services to be exchanged are things wanted for their own sake, not for the sake of a further and subsequent exchange into something else. There will be no opportunity for further exchanges, and no need for them, for pre-reconciliation of choices enables each participant to obtain that selection of quantities of goods and services which he prefers above all others that he could obtain by free agreement with other participants, given his and their tastes and endowments. It is in a world where we look forward to time-to-come that we need money. Money enables a seller to put off deciding what specific goods, useful in themselves and having particular qualities and capacities (goods *proper*) he will accept in exchange for what he gives. Money is sometimes called a store of value, but value can be stored, conveyed through calendar time, by means of any durable valuable goods. It is sometimes called a medium of exchange. But a *medium* of exchange is only needed because we do not

know what there is to be had and where to get it. Money is a medium of *deferment* and of *search*. The shopper who sets out for the market with her full purse is a searcher. Money is needed because at every calendar moment which presents itself, which is the momentary *present*, there is for each of us a lack of knowledge, a lack which, *within that moment*, is irremediable. Keynes defines three motives for holding a stock of money (instead, let us say, of a stock of houses, trees, wine or beautiful paintings). They were the transactions motive, where money is held because of an awareness that payments of indefinite destination and date will soon have to be made; the precautionary motive (but precautions are provisions against unknown contingencies); and the speculative motive, where it is feared that if goods proper, or even a borrower's bonds, were held, these assets might decline in value in terms of ready cash. Any durable goods could serve as a reserve against contingencies, were it not for the speculative danger of a loss of value. The nature and usefulness of money are intimately bound up with the awareness of a lack of knowledge. The world where money is held in stock is the world of uncertainty, the world where we know there is time-to-come but cannot know what it will bring. Those theoreticians who studied a system of universal fully-informed pre-reconciliation of choices, a necessarily timeless world of complete and perfect relevant knowledge, were able, and were obliged, to exclude money from their conception.

The presence and importance of money in the economic scene was, of course, unquestionable. Money served as the unit of account to render the values of all goods capable of immediate mutual comparison. However, the money actually represented by tangible notes or visible book-entries had a life of its own, and this life was described by some writers in a theory separated from that of value. The account thus given of money was, as it were, *hydraulic*. Money moved about, not only in measurable quantities per unit of time, but even, as it were, in labelled consignments which had to pass from one ownership to another in order to perform their service and have their effect. The Quantity Theory of money was encapsulated by Irving Fisher in a formula, $MV = PT$, which, though itself a truism, was capable of yielding insights when some one or other extra condition was assumed. Let us suppose that the only currency in use in some closed economy is banknotes each constituting one unit of money. And suppose there is a law that every recipient of any banknote must at

once put his dated signature on the back. Then let M stand for the number (supposedly constant) of banknotes in existence at all dates during some year, (the *money stock*). Let F stand for the total number of signatures on all the banknotes taken together, whose dates fall within that year. (F is then the money flow). Let V stand for F divided by M . V is thus the *velocity of circulation of money*. Let T be the number of parcels of goods changing hands during the year, and let P be the total value of all these parcels divided by their number, so that P is the average value of a parcel. Then the formula $MV = PT$ merely says that the annual value of banknotes paid for goods is identically (i.e. necessarily and by the meaning of terms) equal to the annual value of goods given in exchange for banknotes. Let us now suppose, for example, that M is doubled, while V and T remain unchanged. Then P must have doubled. Or if, for example, V declines while M and T remain constant, P must decline. The obviousness of these conclusions, and the need to ensure that the goods bought with the money-flow MV include all those, and only those, listed under T , do not render the conclusions worthless. But there is an aspect of the Fisher formula which is in essential and sharp contrast with the propositions of value theory. The latter refer directly to the choices and acts of human individuals. The Fisher formula says nothing explicitly about human deliberative conduct. It is, in ostensible meaning, purely mechanical.

The Quantity Theory of Money, which seeks to explain how the average price of goods in general is raised or lowered in comparison with its level at some "base-date" in the past, can be given a form which shows this average (comparative) price level as influenced by human taste and judgement. The "Cambridge" version of the Quantity Theory suggests that an individual, a firm or a corporate authority will pursue some preferred ratio between the flow of money which, as cash receipts and outlays, passes through its hands, on one hand, and the stock of money which it usually keeps in readiness, on the other. The method of this pursuit most readily open to it may be to regulate the size of its outlay. A reduction of the outflow will not necessarily at once reduce the inflow, and thus a larger stock can be built up. Alternatively the individual or firm may be able to borrow extra money, but this recourse will, in the aggregate over all individuals and firms, ultimately encounter a limitation of the banking system's power or willingness to increase the total of its outstanding loans. The linkage between the aggregate stock and the aggregate flow of money can be expressed as a target ratio between these two, in

the sense that if all individual and corporate holders of money stocks achieved their own preferred ratios of stock to flow, this target would be the result in the aggregate. We can write $M = kY$, where M is the aggregate of the money stocks held by individuals, etcetera, Y is their aggregate cash flow, and k is the target ratio. This theory (which is capable of many variant refinements) is much closer than the Fisher formula to the reasonings employed by value theory. But it is not wholly at one with them. Perhaps in any subject matter the most potent means of clarification is to formulate some direct question. What question ought to be asked by the monetary theorist? In a remarkable article in *Economica* of 1935, called "A Suggestion for Simplifying the Theory of Money" Sir John Hicks wrote as follows: "What has to be explained is the decision to hold assets in the form of barren money, rather than of interest — or profit-yielding securities. So long as rates of interest are positive, the decision to hold money rather than lend it, or use it to pay off old debts, is apparently an unprofitable one. This, as I see it, is really the central issue in the theory of money". The seed of the answer, Hicks finds, is already present in Keynes's *Treatise on Money*, where the possibility of a preference on the part of some asset-owners for holding bank deposits rather than securities is explained by their bearishness, that is, their fear that the prices of securities may be about to decline in terms of money. This is the beginning of the notion of liquidity-preference. Of the three motives which Keynes discerns for it, it is the transactions-motive, the need to have ready money available in case of impending contingent out-payments, that Hicks especially contributes to. He points out that lending or investing money involves expense and trouble, and that if the amount to be lent is small and the time before it may be needed is short, that trouble and expense will not be sufficiently compensated by the interest, in absolute amount, which will be earned. Keynes had offered no analysis of the transactions-motive, presumably deeming it self-evident. His momentous suggestion was the speculative motive, the true bearishness, the real and massive source of liquidity-preference.

The transformation brought about in economic theory by Lord Keynes was the effect of a bold, brilliant and unfettered intellect, stirred by cataclysmic events and projected into other minds by an electric personality. That personality could shock as well as enchant, it was often used to shatter the complacent reliance on received ideas which seemed to him to be choking the right path of history-in-the-

making. He was eager to influence events, but also eager to be the author of novelty and excitement in ideas. In 1921 his *Treatise on Probability*, adopting a suggestion of Leibniz, sought to make probability a branch of logic instead of a branch of actuarial arithmetic. Was probability a key idea for economics? The human predicament which Keynes's probability sought to cope with was, in the end, recognised by him to be unsolvable. It is the dilemma of the human essential, unresolvable condition, that men's knowledge concerns the past, but their decisions, their choices of action and policy, are what create the future. In the final encapsulation of his theory of employment, an article in the *Quarterly Journal of Economics* of February, 1937 ("The General Theory of Unemployment"), he rejected in a few incisive and contemptuous lines the notion that business in its aspect of enterprise and the creation of new productive facilities can be the child of reason fully-informed, of the logical use of sufficient data. In a world of certainty, *enterprise* would be needless and impossible. Let us go beyond Keynes's own statements and say that the world of freedom of origination and the world of calculated certainty clash in essential, fundamental exclusion of each other. If we live in one, we cannot live in the other.

If one term more than any other unites the variant strands of Keynes's thought, it is *liquidity-preference*. The source of this desire is the very Scheme of Things itself, the elemental unknowledge of the content of time-to-come. Men want to have means and powers of action; but they want those means to be protean and apt to all contingencies, the contingencies of a world in a great measure composed of such. Except when it is burning up in a fire of inflation, money is the most liquid of resources. Even to lend it, even when the borrower's honesty and ultimate solvency are trusted to the last degree, involves a danger, a possibility of loss. For when he signs a bond, the borrower promises to pay stated sums at stated dates. If the lender, at some date during the period of those dates, should find himself needing the money he has lent, he cannot claim it from the borrower. He can only sell his bond to a third party. At what price? At the moment when he lends, he cannot know. Nor can he know that the emergency or opportunity which calls for ready money will not arise. To induce a lender to accept this danger, he must be compensated, and the compensation is the interest-rate, the excess of the borrower's promised deferred payments over the sum initially lent to him. In this manner of viewing the act of lending, I am again going beyond Key-

nes, but not beyond the essence of the speculative motive for holding bank-deposits, ready cash, rather than bonds or investments, unless those securities are to be had at a price low enough to offer good hope of an impending rise.

In liquidity-preference, Keynes drew from the real business scene a suggestion indispensable to his theory of employment. That theory rested on the supposition that the sum which business men in a broad sense intend in the aggregate to spend in some named interval on improving or extending their productive facilities can differ from the sum which, in the aggregate, people at large intend to save in that same interval out of their incomes. But according to prevalent ideas at the time when he was writing, the rate of interest was the price which brought those two sums, investment in equipment on one hand and saving on the other, into equality. If the rate of interest did perform this role and was itself thus determined, how could intended investment and intended saving differ from each other? By ascribing the cause and determination of interest to liquidity-preference instead of to the task of equilibrating saving and investment, Keynes released those two variables from mutual dependence and showed how aggregate effective demand for products of all sorts could fall short of their full-employment supply.

Liquidity-preference is an expression of uncertainty, of the consciousness of unknowledge of history-to-come. That consciousness of unknowledge is the ultimate and simple basis of Keynes's explanation of how involuntary unemployment can exist in face of a supposed tendency for men to pre-reconcile their choices and thus go as far as they can to make them rational. The theory of value, which before Keynes was the core of economic theory, says that a man can always gain all the employment he desires by reducing low enough his claimed share of the product he helps to make. Each extra man of his kind of skill which the employing firm might engage will increase its output (its weekly quantity produced) of the product, but as we pass in review a series of possible numbers of such men that it might employ, these suppositious numbers differing from each other by one man, the differences made to the output, as we go up the steps of the series, will be smaller and smaller. We also suppose that whatever wage, in terms of product, is paid to one employed man, is paid to all. There will be some number of men such that the difference made to the output by one extra man would be equal to the wage paid to each of them. That is the number which it will best pay the firm to employ.

This account of the matter, on its own terms, is valid so long as we assume *that wages are paid in product*. If we suppose them paid in money, all is changed.

The firm must then pay wages in money while the product is in course of being made, and subsequently sell the product. How can it know whether the product which will emerge will sell for enough to pay the related wages? In times of depressed business, every addition to the inventory of product awaiting sale may require a reduction of the price per unit which can be charged. The difference *in terms of money value* which the presence or absence of one man makes may be zero, or negative. Above all, it is *unknown* when the decision to engage an extra man must be taken, or rejected.

Keynes's theory of employment was summarised by himself with devastating force and effect in his article in the *Quarterly Journal of Economics*. In its ultimate astonishing simplicity, it says that unless everything that can be produced at full employment is bought with the income represented by that flow of production, enterprisers, employers, will be left with unsold goods, undesired stocks of products, and will cut down their output and, to that end, the employment that they give. Income-receivers as such, the employed and the employers, do not wish to consume the whole of their money incomes, but save some of it. This desired saving would, at full employment, leave a gap between income and expenditure, that is to say, between the quantity of goods produced in a given interval and the quantity willingly acquired in that interval. This gap must be filled, if full employment is to be tolerable to the employers, by those employers' own expenditure on goods not for consumption but for improvement and extension of productive facilities. Desired saving must be matched by desired enterprise — investment, at any level of employment and output which is to be capable of persisting. But to invest in productive equipment is to be enterprising, enterprise is a march into the undiscovered country, and employers' nerves can fail. This is the Keynesian theory of employment, grounded in the basic Scheme of Things and the nature of mankind.

Much else was done in the 1920's and the 1930's besides the creation of a theory of employment. Piero Sraffa revealed an internal contradiction in the notion of perfect competition. His famous article of 1926 in the *Economic Journal* revived a problem which had occupied Augustin Cournot in his classic *Recherches sur les principes mathématiques de la théorie des richesses* of 1838, and had been dealt

with by Marshall in his *Principles*. The result was a theory of monopolistic, or imperfect competition, chiefly the work of Sir Roy Harrod, Edward Chamberlin and Joan Robinson. The Austrian (Böhm-Bawerk's) theory of capital was wrought afresh by Professor Hayek. In a brilliant fusing of the real industrial organism pictured as a whole, its statistical description, and the tracing of the ripples which are propagated through this organism by a change in the pattern of consumers' demand, using a tool of matrix algebra, Wassily Leontief invented input-output analysis, to which the electronic computer has brought immense possibilities of practical application. Sir Roy Harrod gave in the last of those years a first sketch of a theory of growth based on the notion of the capital-to-output ratio, and this same conception was invented, simultaneously and independently, by Evsey Domar. Those were years of brilliant theoretical fertility, still expressed in literary forms rich with suggestive subtlety and depth.

Aldeburgh

G.L.S. SHACKLE