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Nassau Senior's Contribution to the Methodology of Economics

By MARIAN BOWLEY

THE intensity and persistence of the methodological controversies on the Continent have distracted attention from the mode of growth of the English approach to the problems of the method and scope of economic enquiry.¹ Indeed it has frequently been assumed that continued use of the deductive method has been the result of blind adherence to the classical tradition without any important discussions, except such as were stimulated by the attacks of the historical and empirical schools. But in this respect the historians have shown a lamentable disregard of their own avowed principles of research, and failed to appreciate the history of the methodology they have attacked. By attempting to explain away the existence of the classical school of method in terms of contemporary philosophy and institutions, they have overlooked the actual development of the methods they have criticised. In fact, whatever may have been their mistakes, the adherents of the classical method have possessed a far greater understanding of its problems, than their critics have either given them credit for, or displayed themselves.

The classical economists themselves have shown a very real interest in putting their own house in order, a fact which perhaps accounts for their apparent indifference to the developments of divergent schools of method, of which they were not by any means unaware.² It thus appears

¹ The criticisms of the various branches of the Historical School do not directly concern us here, but it is of some interest to notice that it attracted its most distinguished English adherents, J. K. Ingram and Cliffe Leslie, at a time when it was most under the influence of Roscher and Knies, both of whom admitted the importance of the results of the classical analysis. For the most extreme criticisms of the deductive method see Schmoller: *Grundfragen der Socialpolitik und der Volkswirtschaftslehre*; for a reply see Menger: *Untersuchungen über die Methode der Socialwissenschaften und der Politischen Oekonomie*. Cf. also Robbins: *The Nature and Significance of Economic Science* (2nd ed.), for a more recent defence.

² Marshall (*Principles of Economics*) appears to have underrated English development of method by an over-generous attempt to give credit to the work of the German Historical School. In Appendix C, with a remarkable disregard of Senior's and Cairnes' attempts to distinguish between the science and the art of economics, he says, "It is only recently and to a great extent through the wholesome criticisms of the historical school that prominence has been given to that distinction between strategy and tactics in warfare, in the field of economic method." Actually Senior used practically the same analogy.

to be more useful to examine the way they dealt with their own problems than to follow the historians over the well-worn field of the relation of classical economics to Benthamism.¹ Everything possible, right or wrong, must have been said by now in interpretation of the philosophical background of English Nineteenth Century economics—the result of it all is merely to leave a profound scepticism as to the value of such explanations if, instead of reading commentaries on the Classics, one reads the Classics themselves. Perhaps a more fundamental reason for taking this course is the failure of the attempts to explain away the significance of the classical methodology, to account either for the continuity in treatment between Ricardo and Marshall, or for the growth of deductive schools in Austria and Lausanne. I shall, therefore, ignore the explanations, plausible and otherwise, that have been given of the general adherence of English economists to the deductive method in economics, and limit myself to following out the attempts that were made to define that method.

In fact the controversies within the deductive school have no logical connection with what may roughly be called the historical approach.² All the protagonists have started from the basis that there are permanent uniformities in economic behaviour. The disputes have been concerned with the question of how far it is possible to select the data of economic analysis in order to examine certain aspects more closely, without omitting anything organically

¹ Cf. Schumpeter: *Dogmen und Methodengeschichte*. III. *Das Klassische System*, par. 5, and Bonar: *Philosophy and Political Economy*, Book III, Chap. 2.

² Dr. Kaufmann has recently suggested that the only difference between the deductive and empirical methods is as to the desirability of formulating general or particular laws in particular cases, pointing out that each method makes use of an assumption as to the nature of cause and effect and are therefore to that extent both hypothetical. (*Review of Economic Studies*, February, 1934, "The Concept of Law in Economic Science"). Welcome though any attempt to bring about a rapprochement between the exponents of the various methods is, Dr. Kaufmann appears in this respect to have gone too far and merged three questions at least, into one. The first and most fundamental is as to the existence of independent uniformities of economic phenomena; until agreement is reached upon this point it is useless to try and consider the dispute between the sociological historians and the deductive economists as a question of degree. The second is as to the best method of finding economic laws, the empirical versus the deductive; this in fact is a question of degree turning on opinion as to practicability, etc., and it is this question that Kaufmann really resolves, but it had been done long ago. See section II below. The third is as to the best method of dealing with particular problems, whether by applying general laws which do not take into account the particular premises, or by treating all premises as particular and ignoring the general implications. This is perhaps a dispute which is really one of degree, but by treating it as one, there is a danger of obscuring the divergence in outlook involved between the difference of emphasis on general and particular propositions respectively. Cf. discussion of the Senior, Mill, Cairnes controversy below p. 299 *et seq.*

connected with the fundamental problems—or put more technically, how few, and how simple, are the terms of the economic functions which are sufficient to determine the relations between all the relevant variables? Essentially it is this question which has occupied the centre of interest from the beginning of last century to the present day. With the exception of John Stuart Mill, who attempted to introduce the economic man as a hypothetical basis of economic analysis,¹ and a few of his followers, English economists have always started from the idea that the initial premises must include the whole range of data relevant to the pricing process; the principal problem has been to decide what the data are. Thus the methodological significance of the formulation of the marginal theory of value, in terms of choices between scarce satisfactions, has always been recognised as its contribution to the solution of this problem by completing both the premises of the Ricardian theory and that theory itself.² Similarly Pareto's criticism of Marshall's use of the "one at a time" method on the assumption that the data excluded had either no organic influence on the results, or that it was of the second order of smalls, turned on the same point.³ Finally we can point to the interest that has been excited by recent discussions of "the path" in querying the validity of both Marshall's and Pareto's analysis on the same grounds.⁴

I

It is impossible in the small space available to describe the discussions on method previous to Senior's first

¹ J. S. Mill: *Essays on Unsettled Questions*: "On the Definition of Political Economy; and on the Method of Investigation Proper to it."

² See Wicksteed: *Collected Works*, Vol II. "The Scope and Method of Political Economy in the Light of the Marginal Theory of Distribution."

³ See *Principles of Economics*, Appendices B, C and D, for the fullest exposition of Marshall's method. His justification of the use of the hypothetical method is to be found in Appendix C in its most concise form. "It is true that the forces with which economics deal have one advantage for deductive treatment in that the method of combination is, as Mill observed, that of mechanics rather than chemistry. That is to say that when we know the action of two economic forces separately . . . we can predict fairly well their conjoint action without waiting for specific experience of it." Pareto's particular objection to the literary economists was just this assumption. *Manuel d'Economie Politique*, pp. 219-226.

⁴ See Wicksteed's criticism of Marshall's theory of consumer's surplus. *Collected Works*, Vol. II, pp. 467-473. The problem has, however, cropped up in practically all discussions of the concept of a perfect market, see for example Wicksell's criticism of Jevons in *Ueber Wert, Kapital und Rente*, Chap. 2, par. 5. Recently the problem has been stated in general terms by Dr. Rosenstein-Rodan: "Das Zeitmoment in der Mathematischen Theorie des Gleichgewichtes," *Zeitschrift für Nationalökonomie*, May, 1929, and "The Rôle of Time in Economic Theory," *ECONOMICA*, Feb., 1934.

appointment to the Drummond Chair at Oxford in 1825.¹ A very brief outline, however, of the main issues involved in the Ricardo-Malthus-Say controversy is necessary for the sake of continuity.

Ricardo set the ball rolling by introducing the method of isolating economic tendencies by the use of strong cases.² But there can be no doubt that Ricardo thought that he was merely making easier the description of certain fundamental tendencies existing in the real world, for essentially his premises were the same as Adam Smith's. Malthus, however, believed it was impossible to select data in this way, since he considered that long and short run tendencies were inextricably interconnected. It was necessary therefore, he argued, to base all analysis on an extensive knowledge of facts, and to proceed from the short to the long period.³ Essentially it was round this point that Malthus' criticisms of Ricardo revolved.⁴ Say, who was essentially in agreement with Malthus on Ricardo's shortcomings in this matter, considered that the only really scientific method of investigation was that of Baconian induction. The only way to discover scientific laws, he argued, was by observation of the uniformities of phenomena. The essential preliminary was, therefore, the collection of general facts, i.e. induction.⁵ But like every other advocate of the empirical method in economic science, he was quite unable to explain how the general facts can be isolated from the others in the absence of economic laboratories.⁶

It is evident that by the time Senior went to lecture at

¹ These will be treated more fully in a forthcoming book on Nassau Senior.

² Ricardo : *Principles of Political Economy and Taxation*.

³ Malthus : *Principles of Political Economy*, Preface.

⁴ The discussions between Ricardo and Malthus are to be found principally in Malthus' Preface and in various scattered passages throughout his *Principles*, and in *Ricardo's Letters to Malthus* (Edited by Bonar, 1887) and to *Hutches Trower* (edited by Bonar and Hollander, 1899). Considerable light is also thrown on their disagreements by *Ricardo's Notes on Malthus* (edited by Gregory and Hollander).

⁵ *Traité d'Économie Politique* : " Discours Préliminaire ", particularly pp. 3-16 (6th edition). See also *Mélanges de J. B. Say* for the correspondence between Say and Ricardo which contains numerous references to these questions of method, also Say's letter to Malthus, Feb. 4th, 1827.

⁶ It is impossible to consider the points of view of other writers, such as Torrens and McCulloch, here, or to discuss the question of the scope of economics. Torrens' views on method, etc., are contained in the Introduction to his *Essay on the Production of Wealth*, and McCulloch's in the Preface to his *Principles of Political Economy*. For the sake of completeness Richard Jones' more or less isolated advocacy of the historical method in 1833 (just three years after the end of Senior's first tenure of the Oxford Professorship) should be mentioned. *Inaugural Lecture at King's College*, London, 1833. (Reprinted in his *Literary Remains*, 1859.) Jones was the exception which proves the rule, for his discourses on method did not attract any interest among his English contemporaries.

Oxford in 1826 the principal problems of the deductive method in economics had been raised in one form or another. But with the exception of Say's *Discours Préliminaire*, no attempt had been made to consider systematically how far the open or tacit claims as to reality and completeness of the premises were justified. This gap Senior attempted to fill in his Introductory Lecture and the succeeding lectures on the fundamental propositions, and at intervals during his whole active life as an economist.

The Introductory Lecture delivered at Oxford in 1826, though not in itself an important contribution to the solution of problems of scope, showed the main lines of approach which he subsequently developed. As his chief interest in economics was the light it might be expected to throw on the social questions connected with the prevalent poverty of the working classes, it is not surprising that he started with a wide definition of the scope of economics. Thus economics was defined as

“the science which teaches in what wealth consists—by what agents it is produced—and according to what laws it is distributed—and what are the institutions and customs by which production may be facilitated and distribution regulated so as to give the largest possible amount of wealth to each individual.”¹

He went on immediately to justify this definition by explaining the nature of the premises on which it was founded :

“The first or theoretic branch is that which explains the nature, production, and distribution of wealth, and will be found to rest on a few very general propositions, which are the result of observation or consciousness, and which almost every man, as soon as he hears them, admits as familiar to his thoughts, or at least included in his previous knowledge.

“Its conclusions are nearly as general as its premises—those which relate to the nature and production of wealth, are universally true; and though those which relate to the distribution of wealth are liable to be affected by peculiar institutions of particular countries—in the cases for instance of slavery, corn laws, or poor laws—the natural state of things can be laid down as the general

¹ *Introductory Lecture*, 1826, p. 7.

rule, and the anomalies produced by particular disturbing causes can be afterwards accounted for.”¹

This general idea, of the nature of a science of economics based on general propositions covering the major phenomena affecting economic phenomena, he retained unchanged to the end of his life, expanding it in the *Political Economy* in 1836 and in the Lectures of 1847.

As to the second branch, the practical, however, his opinion underwent two major modifications in 1836 and in 1847. But in 1826 this branch was allowed the same general position by Senior as by McCulloch :

“The practical branch of the science, that of which the office is to ascertain what institutions are most favourable to wealth, is a far more arduous study. Many of its premises indeed rest on the same evidence as those of the first branch, for they are the conclusions of that branch—but it has many which depend on induction from phenomena, numerous, difficult of enumeration, and of which the real sequence often differs widely from the apparent one. The machinery of civilised society is worked by so many antagonistic springs; the dislike of labour, the desire for immediate enjoyment, the love of accumulation are perpetually counteracting one another, and they produce such opposite conduct not only in different individuals but in whole masses of people, that we are liable to the greatest mistakes when we endeavour to assign motives to past conduct, or to predict the conduct which a new motive will produce.”²

Even in 1826 Senior laid little general claim to any degree of authority for the practical branch comparable with that claimed for the theoretical, and maintained that it was inattention to the necessary distinction between them that has brought economics into disrepute in many quarters. Nevertheless at this stage he suggested that many of the most important practical conclusions rest so immediately on those of the theoretical branch as to have the same certainty. He did not explain which practical conclusions these were.

“Inattention to the distinction between the theoretical and the practical branches of Political Economy appears to me to have occasioned much of the difference of opinion

¹ *Introductory Lecture*, 1826, p. 8.

² *Ibid.*, pp. 8–9.

which prevails as to the certainty of its conclusion. Those who assert that it approaches to the accuracy of logic or mechanics must either have confined their attention to the theoretic branch, or have forgotten that the practical branch must sometimes draw its premises from particular facts respecting particular climates, soils, and seasons, and must sometimes take into account the influence of every human passion and appetite, under every modification of government and knowledge.

"On the other hand the uncertainty which affects many of the investigations of Political Economists has been rashly attributed to them all. Because from probable premises they have deduced only probable conclusions it has been sometimes supposed that probability, and that of a low degree, is all they can attain."¹

But he almost immediately introduced the important modification mentioned above :

"I hope also to show that many conclusions, and those of the highest importance, in the practical branch, rest so immediately on the conclusions of the theoretic branch as to possess equal certainty and universality."²

Despite this rather nebulous attempt to differentiate between the certainty of theoretical analysis, and the uncertainty attaching to its application to particular cases, there was already a significant difference between Senior's statement and McCulloch's. He stressed the unpredictability of human actions, the complex of human passions, the variations in civilised development, without attempting to relegate them to the category of not very important exceptions like McCulloch, who only admitted that occasionally discretion has to be used in dealing with particular problems.³

Probably, however, Senior's discussion of the fundamental premises in economics was the most significant difference between his treatment of method and that of most of his predecessors. Not merely were they selected so as to cover all at once the main phenomena which could affect economic data, but he went into their validity and universality with the greatest care. There were four fundamental propositions and a fundamental definition which can be summarised briefly as follows :—

The definition was that of wealth : this Senior defined

¹ *Introductory Lecture*, 1826, p. 10.

² *Ibid.*, p. 11.

³ McCulloch : *Principles of Political Economy*, 3rd ed., Preface, p. 14.

to cover all goods and services which possess utility and are scarce, in other words everything which enters into the circle of exchange.¹ The importance of this definition became evident immediately he stated the first fundamental proposition :

“That every man is desirous to obtain, with as little sacrifice as possible, as much as possible of the articles of wealth.”²

Now this proposition is the common one at the basis of all classical economics, and it is only by defining wealth to cover all services as well as material goods, that it is possible to claim that it covers the complex of actions which may influence the pricing process. As long as wealth is confined to material goods, the applicability of economic laws is limited to only a portion of the objects of exchange, and depends on the assumption that the objects excluded have no significant influence on the pricing process of the other commodities. Any such assumption according to the marginal theory of price necessarily prevents economics having any claim to be based on positive premises.³ It is arguable, however, that as far as a physical cost of production theory is valid, this is not true, as the characteristic of the theory is the determination of price by comparisons of physical cost, and that in consequence it is possible to limit the circle of exchange as much as desired. Instead of being unrealistic the application of the analysis is merely artificially limited. It seems to me probable that the realisation of this independence accounts for the cheerful way in which Ricardo omitted to consider the pricing process of services, and that he forgot that this could not justify the exclusion of services from the circle of exchange in the short run, where demand was admitted to have considerable influence. It is less understandable that Malthus, who started by maintaining that demand was as important an influence as cost of production, should deliberately exclude services from consideration.

Senior, however, was not content with this vital alteration. The explanation of the way in which the desire for wealth affects both the demand for individual commodities

¹ *Introductory Lecture*, p. 35.

² *Introductory Lecture*, p. 35.

³ It is not clear from Say's *Traité* whether he thought that Malthus' and Ricardo's omission of immaterial goods from wealth destroyed the validity of their theories of value as applied to the actual world.

and services and the willingness to take action in order to obtain that wealth, is clearly an essential part of the proof of the universal sufficiency of this motive to account for human action in connection with wealth. The detailed discussion of these points is of course the substance of the theories of value, wages, profits, rent, etc., but the basic lines of the influence and the scope of the motive Senior explained in general terms in discussing the first proposition :

“ In stating that every man desires to obtain additional wealth with as little sacrifice as possible, we must not be supposed to mean that everybody, or indeed anybody, wishes for an indefinite quantity of everything ; still less as stating that wealth, though the universal, either is or ought to be the principal object of human desire. What we mean to state is that no person feels his whole wants to be adequately supplied ; that every person has some unsatisfied desires which he believes that additional wealth would gratify. The nature and urgency of each individual's wants are as various as the differences in individual character. Some may wish for power, others for distinction, others for leisure ; some require bodily, and others mental amusement ; some are anxious to produce important advantage to the public ; and there are few—perhaps there are none—who if it could be done by a wish, would not benefit their acquaintance and friends. Money seems to be the only object for which the desire is universal ; and it is so because money is abstract wealth . . .

“ An equal diversity exists in the amount and the kind of the sacrifice which different individuals, or even the same individual, will encounter in the pursuit of wealth. And not only is the same sacrifice more severe for one than for another, as some will not give up ease or leisure for study, others good air and a country life and others recreation and society, but the absolute desire for wealth on the one hand and the absolute will to encounter toils and privations in its pursuit on the other, are stronger in some men than in others.”¹

It is difficult to find any better statement of the essential premises of the economics of choice, or of the reality and sufficiency of those premises as a basis for a theory of value applicable to the real world, even in modern literature.

¹ Course I., Lecture 2, 1826-7. The bulk of the discussions of the Fundamental Propositions in the *Political Economy* was taken unaltered from this course of Lectures.

The other three fundamental propositions are premises which Senior thought would cover the main observed phenomena necessary to the theory of distribution and production :

(2) "That the population of the world, or in other words the number of persons inhabiting it, is limited only by moral or physical evil, or by fear of a deficiency of those articles of wealth which the habit of the individuals of each class of its inhabitants lead them to require."

(3) "That the power of labour, and of the other instruments of production which produce wealth, may be indefinitely increased by using their products as the means of further production."

(4) "That agricultural skill remaining the same, additional labour employed on the land within a given district produces in general a less proportionate return, or in other words, that though, with every increase of the labour bestowed, the aggregate return is increased, the increase of the return is not in proportion to the increase of the labour."¹

The inclusion of the doctrine of population among the fundamental propositions may seem surprising in view of Senior's general views on the probability of subsistence increasing at least as fast, if not faster, than population. But it must be remembered that this was only Senior's opinion if there was opportunity for the counteracting motive of ambition.

The third and fourth propositions are of course merely statements of the productivity of capital, derived from observation, and of the law of diminishing returns in agriculture, also derived from observation.

The first two propositions are thus based primarily on principles of human nature, and the last two on general empirical observation. Senior's general attitude to method, an attitude which he elaborated but never changed, was that theoretical economics is a deductive science based on a group of premises which cover the main data relevant to the specific objects of the science, and which are drawn from the real world by consciousness and observation. Economics is thus, he argued, as much a real science as

¹ *Political Economy*, p. 26, 6th edition (all quotations from this edition). Except for verbal alterations these are the same as in Course I., Lecture 1, 1826-7.

any of the natural sciences, but owing to the type of data used is not an empirical science in the ordinary sense of the term.¹

The publication of the *Political Economy* in 1836 marked an important change in Senior's attitude towards the scope of economics as a whole, and its relation to policy, though the treatment of the nature and premises of economic theory was simply incorporated from the Lectures. He now limited economics strictly to the field of pure theory :

“The science which treats of the nature, the production and the distribution of wealth.”²

The explanation of the change that he himself gave was that it is beyond the bounds of human capacity to study all the other branches of knowledge necessary to apply economic conclusions to particular cases, or to give advice on policy at the same time as mastering economic theory :

“We believe that such inquiries far exceed the bounds of any treatise, and indeed of any single mind. We believe that by confining our own and the reader's attention to the Nature, Production, and Distribution of Wealth, we shall produce a more clear, and complete, and instructive work than if we allowed ourselves to wander into the more interesting and more important, but far less definite fields by which the comparatively narrow path of Political Economy is surrounded. The question is : To what extent and under what circumstances the possession of Wealth is, on the whole, beneficial or injurious to its possessor, or to the society of which he is a member ?—What distribution of wealth is most desirable in each different state of society ? And what are the means by which any given country can facilitate such a distribution ?—All these are questions of great interest and difficulty, but no more form part of the science of Political Economy in the sense in which we use that term, than Navigation forms part of the science of Astronomy. The Principles supplied by Political Economy are indeed necessary elements in their solution, but they are not the only, or even the most important elements. The writer who pursues such investigations is in fact engaged on the great science of legislation ; a science which requires a knowledge of the general

¹ This idea was developed at length in the later Lectures, 1847-52. See below.

² *Political Economy*, 6th ed., p. 1.

principles supplied by Political Economy, but differs from it essentially in its subject, its premises, and its conclusions. The subject of legislation is not Wealth but Human Welfare.”¹

Under this demarcation of economics the economist is not even allowed to tender advice, his function is no longer to analyse the effect of institutions and customs with the object of giving advice on how to increase wealth, but merely to state general economic principles, which the legislator may be justified in ignoring.

“But his conclusions, whatever be their generality and their truth, do not authorise him in adding a single syllable of advice. That privilege belongs to the writer or the statesman who has considered all the causes which may impede or promote the general welfare of those whom he addresses, not to the theorist who has considered only one, though among the most important, of those causes. The business of a Political Economist is neither to recommend nor to dissuade, but to state general principles, which it is fatal to neglect, but neither advisable nor perhaps practicable to use as the sole, or even the principal, guides in the actual conduct of affairs. . . . To decide in each case how far these conclusions are to be acted upon belongs to the art of government, an art of which Political Economy is only one of many subservient sciences; which involves the consideration of motives, of which the desire for Wealth is only one among many, and aims at objects to which the possession of Wealth is only a subordinate means.”²

This severe limitation of the field of economists,³ not because their conclusions are inapplicable to real life, nor because they are hypothetical, but because there is a marked divergence between economic criteria and the criteria of government, was indeed an important admission, and should have gone some way to dispel the popular belief that the classical economists automatically identified social and economic criteria.⁴ This sudden change of mind must be

¹ *Political Economy*, 6th ed., p. 2.

² *Ibid.*, p. 3.

³ It is not, I think, correct to argue that this limitation forms an arbitrary barrier, the application of the economic theory of choice. All that it involves is the abstention of economists from trying to influence a government's actual choice except by explaining the economic effects of any particular decision.

⁴ The similarity of this opinion with Say's (*Traité*: “Discours Préliminaire”, 6th ed., pp. 1 and 2) is another indication of the generality of the discussions of economic method.

attributed, I think, to Senior's practical experience derived from his investigations into the state of Ireland and from his position on the Poor Law Commission, which brought home to him the variety of non-economic considerations involved in any far-reaching policy.

Senior himself maintained that the confusion of the science of Political Economy with the arts to which it is subsidiary, accounted for the lack of progress in the science for two reasons. Firstly, that it had "excited in the public unfavourable prejudices," because people thought that economists ought to deal with welfare as well as wealth on the one hand, and confused wealth with welfare on the other. Secondly, that it misled economists "both with respect to the object of their science and the means of obtaining it," the former by seducing them into vague fields of conjecture from which no practical results might be expected, and the latter by encouraging the belief that economics consisted in the collection of vast quantities of facts. The collection of facts he allowed to be necessary in any problem of applied economics, but did little to improve the laws of economics which were based on a few general facts :

"The facts on which the general principles of the science rest may be stated in a very few sentences, and indeed in a very few words. But that the reasoning from these facts, the drawing from them of correct conclusions, is a matter of great difficulty, may be inferred from the imperfect state in which the science is now found after it has now been so long and so intensely studied."¹

In 1836, in short, Senior limited the science of economics to an exact science based on the positive premises contained in four fundamental propositions and the definition of wealth. The existence of an art of economics he categorically denied. Everything that is normally included in the art of economics Senior classed indiscriminately as the art of government ; any proposition that had for its object welfare rather than wealth is part of the science of government, and the only work that economists are capable of doing, quae economists, is to formulate general principles of economics and apply them to particular problems.

In effect, Senior's introduction to the *Political Economy* was inspired by the belief that economists had bitten off

¹ *Political Economy*, p. 4.

more than they could chew. The entirely arbitrary line which he drew between the work of examining particular applications of economic principles and that of drawing conclusions from them as to the most economic way of increasing wealth, which is after all the sole subject of the art, can only be explained on this basis. He was not in fact laying down a real methodological distinction, but merely giving expression to his own opinion on the parlous state of economics in general.¹

II

Senior's return to Oxford in 1847 gave him an opportunity of dealing with questions of scope and method at greater length than before. The need of such a procedure was greater he believed, probably rightly, than earlier. Despite the triumph of the teaching of economists in matters of fiscal policy, the validity of the general body of economic theory was being attacked under the impression that it was the foundation of a policy of *laissez faire* in social questions. Public attention was focussed on the social problems of the industrial towns, stimulated by the innumerable reports on their conditions and the increasingly powerful working-class agitation. By associating the opposition of economists, such as McCulloch and Senior himself, to the ten-hour movement with a general policy of *laissez faire*, it was easy enough for the man in the street to overlook the reforming movements which the same economists supported. At the same time business interests were not above claiming the support of economic theory whenever it might be useful in opposing social legislation, and the romantic younger section of the Tory Party inspired by Carlyle had made economists the special target of their criticisms of industrialism.² Some attempt to present the different issues mixed up in this opposition by explaining the foundations and scope of economics was obviously necessary, if only as a protest against the prevalent misconceptions.

With this object in view Senior set out to overhaul the foundations of economic method. In marked contrast to

¹ McCulloch protested strongly against this excision of the art from economics (*Political Economy*, Preface to 3rd ed.), for he naturally thought that the main work of formulating principles had been completed by Ricardo and the only fresh fields for economists were those of the art.

² Cf. Schumpeter: *Dogmen und Methodengeschichte. Part III. das Klassische System*, par. 6, and Leslie Stephens: *English Utilitarians*, Vol III., Chaps. 3 and 4.

J. S. Mill he maintained that economics was seriously inadequate and showing little sign of improvement. This lack of progress he traced back to three factors:—firstly that everyone was personally interested in the results of economic analysis, a fact which militated against impartiality; secondly, that the general interest in the subject had led to the invasion of the field by people with no general background of economics, and interested only in one aspect which they took out of its setting; thirdly, the inability of economists to realise the limitations of their own knowledge. It was this third difficulty, one which he had attempted to deal with in the *Political Economy*, that affected his general discussion of method.

“But many who have avowedly devoted themselves to its pursuit seem to have misdirected their efforts, for want of a clear conception of the object of their investigations, and of the manner in which they ought to be conducted, or the nature of the difficulties to be surmounted. If the teacher of political economy has not decided whether he is engaged in a science or in an art, whether it is his duty to explain phenomena or to deliver precepts, whether his principal business is to observe facts or to deduce inferences, whether his premises are all physical truths or depend partly on assumptions—his work though it may contain partial views of the highest value cannot possibly form a clear and consistent whole.”¹

Senior's attempt to clear up these obscurities involved him in yet another attempt to decide whether there is an art of economics as well as a science, and in an inquiry into the nature of the evidence on which economic theory is founded.

The problem of the existence of an art of economics was one upon which Senior found it difficult to make up his mind. In 1826 he had already admitted the existence of the art in fairly generous terms; in 1836, bothered no doubt by the importance of the non-economic considerations involved in the solution of any problem, he had gone to the other extreme and limited economics solely to the science, in the hope of separating the reputation of economic theory from confusion with that of any particular policy. By 1847, however, he had changed his mind again, returned

¹ Lectures 1847-52, Course I., Lecture I., published 1852, pp. 15-16.

to a middle position, and admitted that an art of economics might exist, in fact that there were two possible arts as well as the science. He now defined the science as stating "the laws regulating the production and distribution of wealth so far as they depend on the action of the human mind," introducing the last clause to avoid any confusion of economics with technology. The art might be defined, he suggested, as either "the art which points out the institutions and habits most conducive to the production and accumulation of wealth," or as "the art which points out the institutions and habits most conducive to that production, accumulation, and distribution of wealth which is most favourable to the happiness of mankind."¹

Both these definitions of the art of economics were, he thought, attractive and plausible, but he denied that it was yet possible for them actually to exist.

"I have already remarked that all the practical arts draw their principles from sciences. If, however, the teacher of an art were to attempt to treat also the different sciences on which it was founded, his treatise would want unity of subject and would be inconveniently long. He generally therefore assumes his scientific principles as established and refers to them as well known. . . . Many of the sciences and of the arts which are subservient to political economy may thus be treated. . . . There is one science, however, to which that treatment cannot as yet be applied, and it is the science most intimately connected with the art of political economy, that is to say the science which states the laws regulating the production, accumulation, and distribution of wealth, or in other words the science (as distinguished from the art) of Political Economy itself. A time will come when the outline of the science will be clearly made out and generally recognised. . . . I scarcely need repeat how far this is from being the case at present."²

In fact, therefore, although Senior admitted the possibility of economics being treated as an art of direct assistance in problems of policy, he refused to admit that it was justifiable to discuss them *quae* economists. His own discussions of social problems, he said, were undertaken not as an economist but as a moralist or statesman, and

¹ Lectures 1847-52, Course I., Lecture 3, published 1852, p. 36.

² *Ibid.*, Lecture 3, pp. 51-2.

he did not "hope from his readers the full conviction which follows scientific reasoning."¹

But Senior realised that the reputation of economics did not only depend on its connection or lack of connection with particular policies, but also on the foundation of its claim to explain actual phenomena. It was in attempting to resolve this question that he made his most important contribution to the methodology of economics.

Sciences, he argued, can be divided into the physical, which study the properties of matter, and the mental, which study "the sensations, faculties and habits of the human mind, and regard in matter only the qualities which produce them." The only sources from which premises for either group can be drawn are observation, consciousness, and hypothesis, the physical sciences depending on observation and hypothesis, the mental mainly on consciousness.

"The physical sciences, being only secondarily conversant with the mind draw their premises almost exclusively from observation or hypothesis. Those which treat only of magnitude or number, or, as they are mainly called, the pure sciences, draw them entirely from hypothesis . . . those which abstain from hypothesis depend on observation, e.g. astronomy and chemistry. The physical arts are almost exclusively based on observation. As their object is to produce positive effects they trust as little as possible to hypothesis; and the mental phenomena which they have to consider are generally few and simple . . .

"On the other hand, the mental sciences and the mental arts draw their premises principally from consciousness. The subjects with which they are chiefly conversant are the workings of the human mind, and the only workings a man really knows are his own."²

To complete Senior's classification before considering its validity, it is necessary to notice his description of the major difficulty of mental sciences as related to the inability to make experiments, and his actual classification of economics as a mental science. The difficulty is the vital one of justifying the interpretation of the workings of other people's minds in terms of one's own.

¹ Lectures 1847-52, Course I., Lecture 3, p. 55.

² *Ibid.*, Lecture 2, published 1852, p. 25.

“When a man endeavours to discover what is passing in the mind of another by reflecting on what has passed, and is passing in his own, the certainty of the result depends of course on the degree in which the two minds coincide . . . and this accounts for the mismanagement of the lower orders, children, savages and madmen, by their mental superiors. . . . The mental peculiarities of other men are likely to lead him astray in particular instances. His own mental peculiarities are likely to lead him astray on all occasions.”¹

This difficulty of interpretation, which makes the inability of the mental sciences to conduct experiments so serious, is only partly eliminated by the possibility of conducting experiments on our own minds.

“When we direct attention to the workings of our own minds, that is to say when we search for premises by means of consciousness, instead of by means of observation, our powers of trying experiments are much greater.”²

After this discussion in general terms we might have expected a detailed discussion of how far the premises of economics are derived from observation or consciousness, but Senior left this out and classed economics as a mental science purely on account of the nature of its subject matter.

“Unquestionably the economist has much to do with matter. The phenomena attending the production of material wealth occupy a great part of his attention; and these depend mainly on the laws of matter. The efficacy of machinery, the diminishing productiveness under certain circumstances of successive applications of capital to land, and the fecundity of the human species, are all important premises in Political Economy and are all laws of matter. But the Political Economist dwells on them only with reference to the mental phenomena which they serve to explain; he considers them as among the motives to the accumulation of capital, as among the sources of rent, and as among the regulators of profits, and as among the causes which promote or retard the pressure of population on subsistence. . . . All the technical terms, therefore, of Political Economy represent either purely mental ideas, such as demand, utility, value

¹ Lectures 1847–52, Course I., Lecture 2, p. 2.

² *Ibid.*, Lecture 2, p. 31.

and abstinence, or objects which, though some of them may be material, are considered by the Political Economist so far only as they are results or causes of certain affectations of the human mind, such as wealth, capital, rent, wages and profit."¹

Senior's classification of economics as a mental study was objected to by Cairnes,² who declared that it no more investigated the laws of mind than of matter, and must be classed as a hybrid. The question was, however, largely one of terminology since Cairnes did not dispute that the characteristic of the mental sciences, inability to experiment, was common to economics.

By pointing out this particular condition of economic science, and using it to explain the futility of trying to find its premises by detailed induction, Senior demonstrated the inapplicability of the Baconian method to economics, lip-service to which had led to inconsistencies in economic methodology. Say, for example, starting with a full-dress statement of the necessity of using the Baconian method, had finally concealed the difficulty of applying it in question-begging terms; Torrens had more elaborately, but equally vaguely, talked of the synthesis of the results of induction; while McCulloch, after stating that induction was as necessary in economics as in physical sciences, had simply ignored the problem. Nor has any other exponent of the empirical approach managed to get over the difficulty, except by deciding beforehand from general observation, and/or consciousness, the uniformities to be isolated, and then isolated them—scarcely a scientific procedure. In fact, the use made of detailed induction by both schools in formulating premises has been confined to testing their generality. Thus although the issue between the two schools can, if Dr. Kaufmann likes,³ be called one of degree not of principle, it is really simply one of the relative practicability of the two methods and can only be decided on that basis. The deductive economists can no more claim greater truth for their laws than the natural scientists, for in both cases they depend on the same factors, the validity of the premises

¹ Lectures 1847-52, Course I., Lecture 2, p. 33. This paragraph is almost the same as one in J. S. Mill's essay on "The Definition of Political Economy", *Unsettled Questions of Political Economy*. A Summary of Senior's views on Method is contained in his review of J. S. Mill's "Principles of Political Economy" in the *Edinboro' Review*, 1848.

² Cairnes, *Logical Method of Political Economy*, Chap. 2, par. 2.

³ See p. 282, note 2.

and the logic of the argument. In short, as both Mill and Senior appreciated, the dispute is not one of the absolute merits of either method but of their relative suitability to economics.

The resolution of the confusion of this question of induction, however, was merely a preliminary to the more important question of the nature of the premises of economic science. The distinction between empirical and deductive sciences has, Senior pointed out, a corollary in the characteristic ability of the mental sciences to substitute for specific observations general observations based on consciousness, and therefore the premises of economics may be founded on general observation aided by consciousness. The most important of the fundamental uniformities derived by Senior in this way was, of course, the general desire for wealth.

So far Senior, Mill and Cairnes were in complete agreement, but the step next in the analysis, and one of great interest, involved a breach between Mill and Senior which left Cairnes more or less facing all ways in his attempt to bridge it.¹ Senior's concept of hypothetical sciences was that they are based, either from necessity or choice, on assumed premises, by which he meant that some data are selected, in the case of economics by observation and consciousness, while other data almost equally relevant are excluded. Consequently the relation of the laws of hypothetical sciences to the real world is ambiguous, they may or may not be present as tendencies. To treat economics as a hypothetical science in this way he believed to be both unnecessary and dangerous, and it was on these grounds that he criticised Mill's concept of the economic man. Mill had maintained that since the desire for wealth is the human motive most relevant to economics, man may be regarded by economists as motivated solely by it. The abstraction from reality involved simplifies the analysis, but as he admitted makes economics essentially a hypothetical science.²

"What is now commonly understood by the term 'Political Economy' is not the science of speculative politics but a branch of that science. It does not treat of the whole of man's nature as modified by the social

¹ *Logical Method of Political Economy*, Chap. 2, par. 3.

² Mill considered that the "*a priori*" method, as he termed the hypothetical method, was the only one suitable to abstract or mental sciences. "On the definition of Political Economy, &c." *Essays on Unsettled Questions*, 3rd ed., pp. 143-144.

state, nor of the whole conduct of man in society. It is concerned with him solely as a being who desires to possess wealth, and who is capable of judging the comparative efficacy of the means for obtaining that end. It predicts only such of the phenomena of the social state as takes place in consequence of the pursuit of wealth. It makes entire abstraction of every other human passion or motive; except those which may be regarded as perpetually antagonising principles to the desire for wealth, namely, the aversion to labour, and desire of present enjoyment of costly indulgences. These it takes, to a certain extent, into its calculations, because they do not merely, like other desires, occasionally conflict with the desire for wealth, but accompany it always as a drag or impediment and are therefore inseparably mixed up in the consideration of it. Political economy considers mankind solely as occupied in acquiring and consuming wealth. . . . The science then proceeds to investigate the laws which govern these several operations, under the supposition that man is a being who is determined, by the necessity of his nature, to prefer a greater portion of wealth to a smaller in all cases, without any other exception than that constituted by the counter motives already specified. Not that any political economist was ever so absurd as to suppose that mankind are really constituted thus, but because this is the mode in which a science must necessarily proceed. When an effect depends upon a concurrence of causes, those causes must be studied one at a time, and their laws separately investigated if we wish through the causes to obtain the power of either predicting or controlling the effect; . . . The manner in which it necessarily proceeds is that of treating the main and acknowledged end as if it were the sole end; which of all hypothesis equally simple is the nearest to the truth."¹

Mill's argument was thus simply that the method applicable to the mental sciences is, by reason of their complicated nature and the impossibility of making experiments, that of deduction from hypothetical premises based on selected data of particular importance and modification in applying conclusions to actual phenomena. When it is remembered that Mill confined wealth to material goods, the inadequacy

¹ *Essays on Unsettled Questions*, 3rd ed., pp. 137-139.

of this hypothesis for investigating the pricing process becomes obvious. The two counteracting forces to the desire for wealth, the desires for leisure and immediate enjoyment, cover only a small section of the influences affecting the intensity of the desire for wealth, in particular omitting the concept of net advantages and the interdependence of values.

Senior's opposition was vigorous :

“ But neither the reasoning of Mr. Mill, nor the example of Mr. Ricardo, induce me to treat Political Economy as a hypothetical science. I do not think it necessary, and if necessary I do not think it desirable.

“ It appears to me that if we are to substitute for Mr. Mill's hypothesis, that wealth and costly enjoyment are the ONLY object of human desire, the statement that they are universal and constant objects of desire, that they are desired by all men at all times, we shall have made an equally sound foundation for our subsequent reasonings, and have put a truth in the place of an arbitrary assumption. We shall not, it is true, from the fact that by acting in a particular manner a labourer may obtain higher wages, a capitalist higher profits, or a landlord higher rent, be able to infer that they will certainly act in that manner, but we shall be able to infer that they will do so in the absence of further disturbing causes. And if we are able, as will frequently be the case, to state the cases in which these causes may be expected to exist, and the force with which they are likely to operate, we shall have removed all objection to the positive as opposed to the hypothetical treatment of the science.”¹

Senior's particular objections to the hypothetical treatment were the perpetual danger of forgetting the hypothetical nature of the premises, its abstractness which he thought unattractive, and the absence of any check on the results by experience.

Cairnes attempted to resolve the difference between the two into a question of terminology, by demonstrating that to a considerable extent the question, as to whether a science should be considered hypothetical or positive, depends

¹ Lectures 1847-8, Course I, Lecture 4, published 1852, p. 62.

Senior's substitution of net advantages for earnings is equivalent to defining in general terms the relation between all the variables which influence the distribution of resources between occupations, instead of leaving that relation to be considered afresh in each particular case.

merely on whether we are considering the nature of the premises or the immediate applicability of results.¹ But this approach conceals the more important question which was really in dispute between Senior, Mill, and Ricardo, and which Cairnes himself suggests: the question of the completeness of the premises. It is obvious that the actual result of a general law in any particular case will be modified by the supplementary premises involved. The result is not determinate *a priori* from the general law, although that is based on positive premises. The general law expresses, as it were, the constant relations in the system of equations, the particular supplementary premises give the values of the variables. Neither Senior nor anyone else denied that. But, if the premises of the general law are not complete, a knowledge of the supplementary premises will only give the result, if the missing link is included in the supplementary premises.² Thus in the question of the definition of the desire for wealth: if it is stated in Mill's form that every one always prefers wealth to anything else with the added warning that it is only a hypothesis, the constant relation between the desire for wealth and all other conflicting motives is not defined completely by the general law. It remains necessary to introduce a further premise in each individual case stating the general relation of other motives to that of the desire for wealth, as well as evaluating the actual variables. Now Senior's explanation of the desire for wealth includes information as to the interconnections between the variables. In justice to Mill it must be remembered that he safeguarded himself by regarding his statement as a hypothesis, but Cairnes took Mill's statement as a positive premise, qualifying it by saying that it was incomplete but not indicating the possible importance of that incompleteness.³

It is evident, of course, that it was much easier for Senior than for Mill to bring the premises of the desire for wealth out of the realm of hypothesis since he included immaterial goods in wealth, while Mill excluded them. In this connection the sense in which Senior used the term hypothetical

¹ Cairnes: *Logical Method of Political Economy*, Chap. 3, par. 3.

Cf. J. M. Keynes: *Scope and Method of Political Economy*, Chap. 7, for a somewhat similar account of this controversy and for a description of Bagehot's position.

² Cairnes: *Logical Method of Political Economy*, Chap 3, par 3.

³ This distinction was evidently considered so important by Senior as to constitute it one of principle.

is of interest in the development of the theory of value. Frequent criticisms have been directed against the marginal theory because it is asserted that its general formulation does not cover all the variables, but leaves them to be fitted in. The reply has been, to prove by explaining the completeness of the premises that the *ceteris paribus* clauses are unnecessary, and that therefore the theory corresponds with reality since it includes all the relevant variables.

As long as wealth was confined to material goods the necessity of the hypothesis of the economic man, though unperceived by anyone before J. S. Mill, was a fact, since it is impossible to deny the influence of desires other than the fundamental desire for wealth on values. Although in the "long run" the Ricardian cost of production theory of value approximately eliminates this difficulty, it does not in the "short run." It is possible that the adoption of the Smithian limitation of wealth to material goods is the real explanation of the persistence of the interest in the cost of production theory which, being applicable only in the "long run", so conveniently avoided these complexities.

In conclusion, it is of interest to draw attention to a recent illustration of the continuity of the discussion of the problems of the deductive method which has been furnished by Professor Mises in his book *Grundprobleme der Nationalökonomie*. Professor Mises argues that economic analysis must proceed from positive premises which are complete, in the sense of complete used throughout this paper, and that the essential premise is the recognised characteristic of man to truck and barter: "Menschliches Handeln ist bewusstes Verhalten des Menschen."¹ From this one fundamental characteristic all the general concepts of economics which are relevant to the formulation of general laws are derived.² Clearly this is the same approach as Senior's, and resembles Mill's as far as the derivation of economic concepts from the initial premise is concerned, but differs in regard to the nature of that premise itself. Allowing for Professor Mises' particular use of the term *a priori*, his interpretation of the significance of the Senior—Mill—Cairnes controversy as an attempt to complete

¹ Ludwig von Mises, *Grundprobleme der Nationalökonomie*, p. 22.

² Mises, *Grundprobleme der Nationalökonomie*, pp. 22-34, "Umfang und Bedeutung des Systems der apriorischen Sätze."

and elucidate the nature of the basic premises of economics is the same as that adopted here.¹

The only fundamental difference between Mises' attitude and Senior's lies in Mises' apparent denial of the possibility of using any general empirical data, i.e. facts of general observation, as initial premises. This difference, however, turns upon Mises' general ideas of the nature of thought, and though of general philosophical importance, has little special relevance to economic method as such.

If the preceding account of the methodological discussions of the first part of the nineteenth century is correct it must be admitted that Senior, not Cairnes, was the most important writer on scope and method among the classical economists. Not only was Senior's contribution more original than that of Cairnes, but it has far more importance in relation to modern discussions of method. His attempt to formulate the premises of the theory of value in such a way as to make economics a positive science foreshadowed the later discussions of the methodological significance of the marginal theory of value. With regard to the scope of economics, Senior was not particularly original, but the difficulty he experienced in making up his mind is of considerable historical interest in that it was caused by realisation of the importance of dissociating economics from the policy of *laissez faire* at least as early as 1836. In short, Senior's attitude to the problems of the scope and method of economics had much in common with that of modern economists, and his contributions to their solution anticipated many of those of the last fifty or sixty years.

¹ Mises, *Grundprobleme der Nationalökonomie*, pp. 18-20.