Antecedents of Post-Keynesian Economics

An economic doctrine emerges within the still living and effective context of previous doctrines. To understand that context is a prerequisite to understanding the Post-Keynesians, first, because they are recurrently contrasting their own position with that of the neoclassical writers and, secondly, because, as they admit, their own doctrine has not yet been worked in all respects. Hence, we offer selections from Schumpeter's History of Economic Analysis on the following topics.

827 .. so far as pure theory is concerned, Walras is in my opinion the greatest of all economists. His system of economic equilibrium, uniting as it does the quality of 'revolutionary' creativeness with the quality of classic synthesis, is the only work by an economist that will stand comparison with the achievements of theoretical physics. Compared with it, most of the writings of that period -- and beyond -- ... look like boats beside a liner.

Cf. life sketch, pp. 827-29. Also Guide, p. 3, 1st paragraph.

910 .. to state the postulate -- or law --that was fundamental to the 'new' or 'psychological' theory of value:

as we go on acquiring successive increments of each good, the intensity of our desire for one additional 'unit' declines until it reaches -- and then conceivably falls below -- zero.

(Again) 'The marginal utility of a thing to anyone diminishes with every increase in the amount of it he already has' (Marshall, Principles, p. 168).

.. we may define from this (as a sum or integral) the concept of total utility and then also say that the total utility of a thing to anyone increases, up to the point of satiety, with every increase in the amount of it, but at a decreasing rate.

In honor of its most important forerunner, it is also called Gossen's first law. .. Gossen's second law, unlike the first, is not a postulate but a theorem: in order to secure the maximum satisfaction from any good that is capable of satisfying different wants (including labor or money) an individual or household must allocate it to these different uses in such a way as to equalize the marginal utility of all of them.

A leap from psychological satisfaction, to utility of alternative materials or techniques, to criterion of optimal selection of alternatives, into application of cartesian coordinates and the calculus.

911 The Theory of Exchange Value.

[though not always realized] .. exchange value is but a special form of a universal coefficient of transformation on the derivation of which pivots the whole logic of economic phenomena.

911 In other words, they [Jevons, Menger, Walras] established what A Smith, Ricardo, and Marx believed to be impossible, namely, that exchange value can be explained in terms of use 912 value. Jevons, Menger, Walras would all of them have approved of this statement. It is this which they meant when they claimed to have discovered the 'cause' of (exchange) value.

The essential point is that, in the 'new' theory of exchange, marginal utility analysis created an analytic tool of general applicability to economic problems.

Cost, Production, Distribution. The concepts of marginal and total utility refer to consumers' wants. They carry direct meaning only with reference to goods and services the use of which yields satisfaction of consumers' wants. But Menger went on to say that means of production... come within the concept
913 of economic goods //913// by virtue of the fact that they also yield consumers' satisfaction, though only indirectly, through helping to produce things that do satisfy consumers' wants directly. Let us pause for a moment to consider the meaning of this analytic device... It enables us to treat such things as iron or cement or fertilizers -- and also all the services of natural agents and of labor that are not directly consumed -- as incomplete consumable goods, and thereby extends the range of the principle of marginal utility over the whole area of production and distribution. The requisites of factors or agents of production are assigned use values: they acquire their indices of economic significance and hence their exchange values from the same marginal utility principle that provides the indices of economic significance and hence explains the exchange values of consumable goods. But those exchange values constitute the costs of production of production for the producing
that/ firms. This means, on the one hand,/the marginal utility principle now covers the cost phenomenon and inconsequence also the logic of the allocation of resources (structure of production), hence the 'supply side' of the economic problem so far as all this is determined by economic considerations. And it means, on the other hand, that, inasmuch as costs to firms are incomes to households, the same marginal principle, with the same proviso, automatically covers the phenomena of income,

formation or of distribution, which really ceases to be a distinct topic, though it may of course, still be treated separately for the sake of convenience of exposition. The whole of the organon of pure economics thus finds itself unified in the light of a single principle -- in a sense in which it had never been before.

914 If the explanation of the exchange value of means of production is based upon their indirect utility or use value to consumers of their final product, i. e., if their economic significance is to be derived which they severally make to consumers' satisfactions, the problem naturally arises how the contribution of each of them is to be isolated, seeing that all factors are equally requisite for the final product and that complete withdrawal of any one of them will in most cases result in a zero product....

915 Marginal physical productivity of a 'factor' is the increment of product that results from an infinitesimal increment of that factor. Marginal value productivity of a 'factor' to a firm is this physical increment multiplied by the corresponding increment in the firm's total revenue or gross receipts... Fundamentally, the Austrian marginal productivity was indeed a value productivity but one that did not presuppose the price
marginal/ of the product: it was not physical/productivity multiplied by any price but physical marginal productivty multiplied by some consumer's marginal utility...

Now this conception of marginal value or utility productivity makes obvious common sense only in the case of a Crusoe economy...

916 In order to determine the prices of factors and their distributive shares we do not need to know their utility values first. All we need to know is consumers' tastes, the technological conditions of production, and the initial distribution of ownership of 'factors'; then the principle of maximum net revenue, implying a principle of minimum cost, will do the rest.

917 Discussion of marginal utilities of means of production
s in the spirit of the theory of imputation easily lead to the recognition of the relevance to these marginal utilities of the elements of complementarity and substitutibility of factors and of their alternative uses. By this route the Austrians arrived at what has been called the alternative-use or opportinity theory of cost

The Limitations of the Barter Economy

Schumpeter, HEA 1087 f.

1087 Walras, anticipated of course by all those authors who -- like A. Smith and Malthus -- had used labor as a standard of value, introduced the useful notion of keeping distinct the numéraire -- a commodity whose unit is used in order to express values and prices but whose own value remains unaffected by this role -- and monnaie -- the commodity that actually serves as means of exchange and whose value is consequently affected because its monetary role absorbs part of its supply.

1088 We have indeed seen that Walras' theory of money is fully integrated with his general theory of value and distribution. WE have noted and shall notice again other advances in that direction, in particular the one associated with Wicksell's name. On the whole however monetary theory remained in a separate compartment and the theory of value and distribution in another. Prices (including rates of income) remained primarily exchange ratios, which money reduces to absolute figures without affecting them in anything except clothing them with a monetary garb. In other words, the model of the economic process was in all essentials a barter model, the working of which inflations and deflations might disturb but which is logically complete and autonomous. Practially all the most valuable work of the period -- so far as it was not concerned with monetary problems -- was Real Analysis, even where it expressed its concepts in monetary terms.

The situation found expression in a concept that emerged and vanished with it. If on the one hand the facts of value and distribution are logically independent of money so that they can be set forth with only a passing reference to it, but if, on the other hand, it is recognized that money may act as a disturber, then the problem arises of defining how money would have to behave in order to leave the real processes of the barter model uninfluenced. Wicksell was the first to see the problem clearly and to coin the appropriate concept, Neutral Money... Its creation induced a hunt for the conditions in which money is neutral. And this point eventually led to the discovery that no such conditions can be formulated.... an interesting case of a concept's rendering valuable service by proving unworkable.

Schumpeter: Notes on Development of Analysis of Costs & Profits

660: He (J. S. Mill) handed to Marshall ready-made the doctrine of the two factors of 'real cost" -- the disutility (irksomeness) experienced by the laborer and abstinence experienced by the saver.

923: Marshall meant (by real cost) 'The exertions of the different kinds of labor that are involved directly or indirectly in making it (a commodity), together with the abstinences or rather the waitings required for saving the capital used in making it.'

917: Discussion of marginal utilities of means of production in the spirit of the theory of imputation easily leads to the relevance to these marginal utilities of the elements of complementarity and substitutibility of factors and of their alternative uses. By this route the Austrian arrived at what has been called the alternative-use or opportunity theory of cost -- What a thing really costs us is the sacrifice of the utility of the/ those other things which we could have had from/resources that that went into the one that we did produce.

912f. Scope of marginal analysis: all costs and distribution

920: Its limitations: theories of enterprise, capital, interest.

923: Its compatibility with disutility and abstinence in Gossen, Jevons, Auspitz, Lieben, and Clark -- not Walras though --

918: ... The history of analytic effort in this field is the history of a growing awareness, partial at first, ever more general later on, of the presence of a logically coherent economic process, an awareness that first attained consciousness formulation in works of such men as Cantillon, Quesnay, A. Smith, Say, and Ricardo. But it was only in the period under discussion[1870-1914] that the conception of an economic cosmos that consists in a system of interdependent quantities was fully worked out with all its problems, if not quite satisfactorily solved, at least clearly arrayed and with the idea of general equilibrium between these quantities clearly wstablished in the center of pure theory.

This was the achievement of Walras. So soon as we realize that it is the general equilibrium system which is the really important thing, we discover that, in itself, the principle of marginal utility was the ladder by which Walras climbed to the level of his general-equilibrium system. If the principle of marginal utility ceased to be all-important after this level had been reached, it was nevertheless all important heuristically. This observation sheds new light on the achievement of Jevons

and the Austrians. They too found the ladder. Defective technique only prevented them from climbing to the top of it. But they did climb as high as their technique permitted. In other words: we must see in the Jevons-Menger utility theory an embryonic theory of general equilibrium or,/all events, a particular form of the unifying principle that is at the bottom of/general equilibrium system. Though they did not make it fully articulate, mainly because they did not understand the meaning of a set of simultaneous equations, and though they saw in marginal utility the essence of their innovation instead of seeing in it a heuristically useful methodological device, they are none the less, just like Walras, among the founding fathers of modern theory. This also holds for J. B. Clark. Later critics were so delighted with their own technical improvements and so anxious to renoucne communion with Jevons and the Austrians that they failed entirely to perceive this.

1016f. In the Walrasian system, the theory of capital formation is, on the one hand, the foundation of the theory of interest and, on the other hand, itself rests on the theory of capital-goods prices...

The new capital goods that are being demanded and produced may not suffice, or just suffice, or more than suffice to make up for the loss the existing stock currently suffers from accident or from wear and tear. The last of these three defines saving, which expressed in terms of the numéraire, is therefore the excess of net income (the total net value of the services sold by households) over consumption (the total value of the products bought by households). Hence, exactly as in Keyness General Theory, current saving is tautologically equal to current investment. Saving is here merely a word that identifies a particular kind of demand, namely, the demand for capital goods...

The equality of current saing and current investment is an identity and not an equilibrium condition. The equilibrium condition is that the sum total of saving in a given period should be equal to the costs of the capital-goods producing firms (produced and) sold in that period, since these firms like all others are subject to Walras' law of costs. (Cf crossover equilibrium).

Now -- unlike Keynes General Theory - the only motive that capitalists can have in this set-up for demanding capital goods is the net revenue expected from them... From this follows another

equilibrium condition, which must be fulfilled by their prices: these prices must, under ideal conditions, be proportional to their net yields or else arbitrage operations would set in to enforce proportionality. But this may be expressed by saying that our capital-goods market is really a market of streams of perpetual net revenues (revenues less depreciation and insurance), from which standpoint all capital goods are on the same footing irrespective of their physical shapes. In order to emphasize this aspect, Walras created an ideal or imaginary commodity that represents 'perpetual net revenue.' This gadget -- another purely theoretical construct -- enables him to endow each household (sic) with a marginal utility and a demand function for 'perpetual net revenue,' and to replace all the (unknown) prices of the capital goods by a single price, which helps then to determine them, namely, the price of a unit of perpetual net revenue per unit //1018// of time -- a profound move on the analytical chessboard... Thus the single price in question is simply the reciprocal of the rate perpetual net revenue, which is a factor of proportionality, common to the values of all the capital goods and readily identified -- so long as there is no money -- with the rate of interest.

... We must be content to state without proof that Walras' system is not -- we are still following an analysis that abstracts from genuine money --upset by the facts, as stylized by him, of capital formation and by the excursion that the theory of it involves into... non-stationary states.

1026 If in the last analysis Walras' system is nothing perhaps but a huge research program, it still is, owing to its intellectual quality, the basis of practically all the best work of our own time.

Cf GPKE p. 84: As Jaffé puts it: "Walras's aim even in his pure economics was prescriptive or normative rather than positive or descriptive. His object was to formulate [invent?] an economic system in conformity with an ideal of social justice."

Walras' Transition from numéraire to money: HEA 1020-26.

1020: At last, we introduce money and monetary transactions.
his/ .. we must see right now how he fitted money into/schema of the economic process, how he determined absolute prices in money as well as in numé_raire, and whether he was right in claiming that his monetary economy enjoys the same properties of determinateness and stability that may be attributed to the numéraire economy.

[For this purpose it will suffice to deal with the case of a money of given quantity that consists in a material of negligible use value, and to note briefly that Walras, who in his first edition (1874-7) of his Eléments had based his monetary analysis on the concept of the economy's monetary requirements, adopted in the second edition the concept of the amount of cash people desire to hold (encaisse désirée), which was not however made part and parcel of the pure theory of general equilibrium -- not fully amalgamated with it -- before the
1021 fourth edition (1900). It is there that //1021// the whole of the Walrasian structure of pure theory appears in all its logical beauty.]

The ground floor of this structure is the theory of the market of consumers' goods. On the second floor we find the theory of production and the market of production services, not separated from, but integrated with the first market. On the third floor we have the market of capital goods similarly integrated with the two others. And on the fourth floor there is another market, integrated with the other three, of circulating capital, that is, of the stocks or inventories of goods -- new capital goods for sale at the establishments of their producers, and consumers' and producers' inventories of all kinds -- that are necessary to keep things going.

... Walras... presupposes that households and firms are from the outset in possession of stocks of goods (inventories) which are now introduced among the data of the general-equilibrium problem. ... WAlras treated them formally as he had treated capital goods: there are the stocks themselves and, in addition, there are the services they render currently, namely, les services d'approvisionnement. Hence stocks and services have to be priced separately, but the price of each stock stands to the price of its ervice in the same relation

Cf Guide pp 90f. surplus

the
/service of/ as the price of/each capital good stands to the price of the capital good itself. Note that the introduction of stocks and the services of stocks constitute Walras' method of synchronizing the economic process: on condition of paying the price of the service -- that is, an interest charge on the circulating capital involved -- households are now enabled to 'transform' their productive services immediately into consumers' goods. But this is evidently no mere detail but an essential feature of the general equilibrium system to which, by way of anticipation, Walras already adverted in his theory of production (Eléments, p. 215).

With the stocks enters money. It is simply a particular item in the list of inventories and also renders a service d'approvisonnement, which acquires a price, like any other service, by virtue of its marginal utility functions.. This 1023// price emerges in a special market, which Walras called the capital market (marché du capital) -- in distinction to the market of capital goods (marché des capitaux) -- and which is an annex of the market of all productive services (Eléments 245). All suppliers of services are now paid, and buy products, in money. Capitalists save no longer by exchanging productive services against capital goods but they save in money and we have a quantity called monnaie d'épargne in addition to the two quantities of transaction money (monnaie de circulation) in the hands of firms and households. The former borrow money and buy new capital goods. The equilibrium price of the 'commodity' in this marketnamely, of money's service d'approvisionnement, is determined by the condition that people's demand for this service -- represented by their encaisse désirée -- be equal tothe total amount of money in existence. Having determined the equilibrium price, we may choose money itself for numéraire and then restate the condition by saying that the rate of interest should be such as to equalize the encaisse désirée and the total amount of money in existence.

So far, the 'existence' of a unique set of solutions or of equilibrium values for the Walrasian system is not affected at all by the introduction of money: the situation in this respect remains, qualifications included, much as we found it in the case of the numéraire economy.(pp. 998-1019). This could be proved but should be intuitively clear from the fact that

Walras fits in money by a device that amounts to setting up its service d'approvisionnement as just one more service (of no direct utility) to be traded in -- which evidently no more changes the logic of the situation than would the introduction of any other additional commodity or service. It should be added however that owing to the nature //1024// of the service that money is supposed to render, the price of its service enters into the demand and supply equations that determine the prices of all the other commodities and services in a peculiar way. This may be seen most easily by observing the variations in the price of the service of money -- or, choosing money for numéraire, interest -- affect directly the prices of capital goods and stocks (inventories) and through these all the other prices and quantities in the system, including those of productive services such as wages and the quantity of labor demanded and offered. This is important to keep in mind: any variation in any price affects all other prices, offers, and demands, but variations in the price of money have an additional influence of particular importance. Hence money prices are not simply translations of prices expressed in a numéraire that is not money into prices expressed in another numéraire that is not money: money prices are not proportional to numéraire prices; they are prices adjusted to a new condition, that is, the condition that governs equilibrium in Walras' capital market. We may still formulate the monetary equilibrium condition as we did above, namely, that total encaisse désirée should be equal to the total quantity of money in existence, but we must keep in mind that the encaisse désirée depends, among other things, on the total numéraire value of transactions and that the latter also depends on the price of the service of money and cannot remain cnnstant if this price -- or the rate of interest -- changes. In other words, we cannot fulfil the monetary equilibrium condition by treating as given not only the existing quantity of money but also the total encaisse désirée, and letting monetary equilibrium come about by appropriate variations in the rate of interest alone. If this fact is realized and acted upon, then we may aver indeed that the Walrasian argument determines a consistent set not only of relative but also of money prices or, if you wish, the price level.

1024

Gordon p 108
$(M/P)^d = Q/2 - 40r$

Walras himself realized this situation and must therefore be credited with having created a theory of money that is complete, consistent, and perfectly adequate, within its own assumptions, to determine absolute prices in terms of money. But at the critical point he failed to go through with it. On the ground that the influence of variations in the rate of interest upon the sum total of transactions, hence upon the encaisse désirée, is only indirect and feeble (Eléments, p. 311) he decided to
1025 neglect it altogether and then proceeded to base //1025// much of his reasoning about applied monetary theory on the simplifying assumption of its absence. This assumption, quite apart from the question whether it is factually justifiable or not, would change the whole situation if we were to take it as part of Walras' rigorous theory. Then as Walras himself observed, the equation of monetary correlation would indeed be 'external to the system of equations that determine economic equilibrium' (ibid.), and then there would be some warrant for saying that Walras' system is essentially a 'real' or numéraire system, complete as such, on which he threw, as a separate piece of apparel, the 'veil of money' (see however next chapter [on production function]). Money interest and money prices would then be no longer determined simultaneously with the relative prices and would in general be inconsistent with them.[70] In view of the spirit as well as the wording of Walras' text, it is, however, much more natural to say that, for purposes of applied monetary theory, Walras decided to abandon his method of general analysis and to adopt that of partial analysis. This means that he decided to adopt an approximation to which the standards of rigorous analysis do not apply.

But the question of stability (and of the presence of a tendency in the system to realize the equilibrium values of its elements) is now much more difficult to answer than it was before. This is not owing to any change in the logical situation that the introduction of money has brought about -- which is much as it was in the numéraire economy -- but to the fact that in a money economy it is more difficult to accept Walras' general pattern of the economic process. Of this Walras was perfectly aware. Proof of it is his emphasis upon the instability of bank credit (e. g., Eléments 354 f). Apart from this it stands to reason that the insertion of

of a monetary capital market offers the economic engine new opportunities for stalling which are absent in a numéraire economy: we may exclude uncertainties in obedience to Walras' directions; but in the case of a 'commodity' which is as volatile
1026 as money and which can be //1026// so easily redirected at a moment's notice, we cannot help thinking of them all the same.
value/ Under these conditions the practical/of the final result at which we arrive nevertheless is no doubt much reduced.. It reads: both for a numéraire and for a money economy, Walras' system of the economic process is determined and stable, though he did not quite succeed in proving this rigorously; for a process which is stationary except for positive or negative investment on traditional lines, it is hitchless in the sense defined above, and full employment of resources is in fact one of its properties; conclusions other than these can be arrived at only by introducing hypotheses at variance with those of Walras. If in the last analysis Walras' system is perhaps nothing but a huge research program, it still is, owning to its intellectual quality, the basis of practically all the best work of our time.

Footnote 72 p 1026
... It should be added again that economists, who wish to establish a tendency in the capitalist economy to produce perennial unemployment, have nothing to fear from a proof that, on so high a level of abstraction, perfect equilibrium in perfect competition would involve full employment.

Schumpeter, pp. 1114 f. Credit Creation [On U. S. Law cf. Samuelson 9th p 300 ff

The theory to which economists clung so tenaciously makes them out to be savers when they neither save nor intend to do so; it attributes to them an influence on the supply of credit which they do not exert. The theory of 'credit creation' not only recognizes patent facts without obscuring them by artificial constructions; it also brings out the peculiar mechanism of saving and investment that is characteristic of full-fledged capitalist society and the true role of banks in capitalist evolution. With less qualification than has been added in most cases, this theory therefore constitutes definite advance in analysis.

Nevertheless it proved extraordinarily difficult for economists to recognize that bank loans and bank investments do create deposits. In fact, throughout the period under survey they refused with practical unanimity to do so. And even in 1930, when the large majority had been converted and accepted that doctrine as a matter of course, Keynes rightly felt it to be necessary to reexpound and to defend the doctrine at length,[5] and some of its most important aspects cannot be said to be fully understood even now.

[5] Treatise on Money, chapter 2. It is moreover highly significant that, as late as 1927, there was room for an article by F. W. Crick, 'The Genesis of Bank Deposits' (Economica), which explains how bank loans create deposits and repayment to banks annihilates them -- in a manner that should have been, but evidently was not even then, 'time honoured theory.' There is however a sequel to Lord Keynes' treatment of the subject of credit creation in the Treatise of 1930 of which it is necessary to take notice in passing. The deposit creating bank-loan and its role in the financing of investment without any previous saving up of the sums thus lent have practically disappeared in the analytic schema of the General Theory, where it is again the saving public that holds the scene. Orthodox Keynesianism has in fact reverted to the old view according to which the central facts about the money market are analytically rendered by means the public's propensity to save coupled with its liquidity preference.

Commercial paper : trade supported by discounting bills of exchange
Banknotes : the gold standard (store of gold fraction of banknotes)
Check currency : makes deposits equivalent of legal tender

Keynes' short-term remedy excludes the essence of capitalist reality

Schumpeter HEA 280 n. 6

.. modern votaries of Monetary Analysis, and in particular its leading exponent Lord Keynes, frequently introduce a most sigificant restriction: they assume the organization and technique of production and the capital equipment as given (in the short run), thus reducing the problem before them to the question what determines in the short run the degree of utilization of a given industrial apparatus and, in further simplification, they identify this greater or smaller degree of utilization with greater or smaller employment of labor so that increase or decrease of industrial investment simply means a greater or smaller wage bill... But the reader should observe (a) that the restrictive assumption in question excludes the very essence of capitalist reality, all the phenomena and problems of which -- including short-run phenomena and problems -- hinge upon the incessant creation of new and novel capital equipment, and (b) that, because of this, a model framed upon this restrictive assumption has next to no application to questions of practical diagnosis, prognosis, and, above all, economic policy unless reinforced by extraneous considerations.

Competition: Abstract Theory and Effective Reality

Schumpeter 974 f.

On Marshall: Just as Walras, more than any other of the leaders, was bent on scraping off everything he did not consider essential to his theoretical schema, so Marshall, following the English tradition, was bent on salvaging every bit of real life he possibly could leave in. As regards the case in hand, we find that he did not attempt to beat out the logic of competition to the finest leaf. On the first pages of his Principles he emphasized economic freedom rather than competition and refrained from defining the latter rigorously.

Schumpeter 975: If we are the opinion, on the one hand, that, from all the infinite variety of market patterns, pure or perfect monopoly and pure or perfect competition stand out by virtue of certain properties -- of which the most important is that both cases lend themselves to treatment by means of relatively simple and (in general) uniquely determined rational schemata -- and, on the other hand, that the large majority of cases that actually occur in practice are nothing but mixtures and hybrids of these two, then it seems natural to accept pure competition and pure monopoly as the two genuine or fundamental patterns and to proceed by investigating how their hybrids work out. This renders the attitude of the theorists of monopolistic (Chamberlin) or imperfect (Joan Robinson) competition.

But instead of considering the hybrid cases as deviations from, or adulterations of, the fundamental ones, we may also look upon the hybrids as fundamental and on pure monopoly and pure competition as limiting cases in which the content of actual business behavior has been refined away. This much more like the line that Marshall took. Should the reader feel I am laboring to convey a distinction without a difference, he is requested to ask himself whether the definition of competition that has been given above [p. 973 f] really fits what we mean when talking about competitive business. Is it not a fact that what we mean is the scheme of motives, decisions, and actions imposed upon a business firm by the necessity of doing things better or at any rate more successfully than the fellow next door; that it is this situation to which we trace the

technological and commercial efficiency of 'competitive' business, and that this pattern of behavior would be entirely absent both in cases of pure monopoly and pure competiton, which therefore seem to have more claim to being called degenerate than to being called fundamental cases? This, if I am not mistaken, is beginning to be widely felt today ....

973 [Cournot, Walras] The all-round rise of the level of scientific rigor eventually produced if not the term yet the substance of what we now call pure orperfect competition.

The notion had been made explicit by Cournot at the end of chapter 7 and the beginning of chapter 8 of his Recherches: after having started from the case of straight monopoly (p. 975) he first introduced another seller and then additional ones until, by letting their number increase indefinitely, he finally arrived at the case of unlimited competition, where the quantity produced by any one seller is too small to affect price perceptibly or to admit of price strategy. Jevons added his law of indifference which defines the concept of the perfect market in which there cannot exist, at any moment more than one price for each homogenous commodity. These two features -- excluded price strategy and law of indifference -- express so far as I can see what Walras meant by libre concurrence.... This does not however dispose of all the logical difficulties that lurk behind the concept of the competitive market, and some of these must now be noticed briefly.

The mechanism of pure competition is supposed to function through everybody's desire to aximize his net advantage... by means of attempts at optimal adaptation of the quantities to be bought and sold. But exclude strategy as much as you please, there still remains the fact that results will differ according to the range of knowledge, promptness of decision, and 'rationality of actors, and also according to the expectations they entertain about the future course of prices, not to mention the further fact that their action is subject to additional restrictions that proceed from the situations they have created for themselves by their past decisions. ... Walras was very much alive to these difficulties and in places... he clearly saw the necessity looming in the future of construc ing dynamic schemata to take account of them. For himself, however, he saw //974// not less
974 clearly that, absorbed in the pioneer task of working out the

the essentials of the mathematical theory of the economic process, he had no choice but to simplify heroically (Elćments 479). Thus, he postulated at first that the quantities of productive services that enter into the unit of every product (coefficients of production) are constant technological data; that there is no such thing as fixed cost; that all the firms in an industry produce the same kind of product, by the same method, in equal quantities; that the producitve process takes no time; that problems of location may be neglected.

For us, the question arises: how much of this did he mean to include in his 'free competition'? It has been held (by Professor Knight amon others) that Walras, and the theorists of that epoch generally, intended to make omniscience and ideally rational and prompt reaction attributes of pure competition; deviations from this pattern would then find room in the folds of an entity called 'friction'.... It is submitted however that there is no point in overloading pure competition like this, and that it is quite possible to separate, in interpreting the writers of that epoch, their concept of pure competition, as defined in the preceding paragraph (p 973) from any further assumptions they may have made ... even in those instances in which they did not carry out this separation themselves.