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MARX, CLASSICAL POLITICAL ECONOMY AND THE PROBLEM OF DYNAMICS PART II

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The second characteristic feature of the dominant theories since Classical economics (the first was their one-sided view of the valorisation process) is their static character. No one disputes the static nature of the theory of the Physiocrats, the discoverers of the 'economic circuit' (the "*Tableau Economique*"). The theories of Smith and Ricardo are both similarly static. All of their categories are based on the concept of an equilibrium, in which 'natural price' (value) asserts itself as an ideal resting point of economic activity, around which market prices oscillate. As a result, there is no room for crises in Ricardo's theory:[1] such things figure as eventualities introduced from the outside (wars, bad harvests, state intervention etc.). In itself the economic circuit always moves in equilibrium, and always follows the same paths. The eventual deceleration and cessation of capital accumulation which Ricardo forecast for the distant future must be characterised as mere pseudo-dynamics, as the dynamic factor is not inherent in the economic process itself, but is rather a natural force which influences the economic process from the outside, (falling rate of profit as a consequence of a growing population, and hence increased ground rents).

Ricardo's own followers left matters at this stage. In France, Say's theory of markets, that is the doctrine that any supply is simultaneously a demand and consequently that all production, in producing a supply, creates its own demand, led to the conclusion that an equilibrium between supply and demand is possible at any time, and at any level of production. But this implies the possibility of the unlimited accumulation of capital and expansion of production, as no obstacles exist to the full employment of all the factors of production.

Although John Stuart Mill was the first to attempt to give consideration to the dynamic character of the economy, through differentiating between statics and dynamics, this division of the object of science, which he derived from mechanics, proved fatal in the later development of political economy. Mill's analysis was utterly static in nature. After first having analysed the economic mechanism in a static state (with constant population, production, amount of capital and technology), and investigating its laws, he subsequently sought "to add a theory of motion onto the theory of equilibrium — to add the dynamics of the economy to its statics".[2]

A certain number of corrections were made to the static picture: population growth, growth in capital etc., as if such subsequent retouching could serve to remove the essentially statically conceived character of the essence of the economic system; as if in fact there were two capitalisms — a static one and a dynamic one. But if capitalism is dynamic, what is the point of investigating the laws of an imaginary static economy, if one does not at the same time show how the transition from statics to dynamics is to take place?[3]

As theories of equilibrium, the dominant theories cannot, on their own principles, derive generalised crisis from the system, as in their view prices represent an automatic mechanism for the restoration of equilibrium and for overcoming disturbances. Any attempt by these theories to include one of the empirically proven moments of disturbance in their system would necessarily come to grief on this fundamental contradiction: a consistent application of the arguments of equilibrium theory (which they use) can only explain such disruptions of the equilibrium as being externally produced, i.e. by changes in what is economically given. As far as the theories of equilibrium are concerned the economy will always tend in one direction following changes in these givens: by adjustment — i.e. a tendency towards the creation of a new equilibrium. How crisis can arise in such a system is difficult to see.[4]

The theory of Alfred Marshall (1880), who tried to link Classical theory to marginal utility theory, is also decidedly static in construction. Although he investigates the movements of a developing society, these merely constitute an external framework of analysis. His sole concern is with the adjustment of the economy to changing external variables, such as population, capital, etc., but not with those developments which arise from the economy itself. Marshall's economy is totally lacking in development. At the centre of his system lies the concept of a general equilibrium which asserts itself throughout the economic mechanism;[5] the attainment of equilibrium signals the fact that no further changes will take place. This basic idea is then applied to individual problems. Equilibrium is not a heuristic device in the construction of theory, but a tendency which seeks to assert itself in reality.[6]

The whole system is governed by the idea of a general state of equilibrium (maximum of satisfaction), which the economy, under perfect competition, strives to achieve. Marshall only arrived at this static picture thanks to his inadequate method, for, despite his "General Theory of Equilibrium", he does not provide any theory of the system as a whole, where all the sub-markets and the process of production are dealt with simultaneously, i.e. where all the inter-relationships in the system as a whole are grasped. What Marshall in fact offers is a theory of particular (partial) equilibria in sub-markets, where the issue at hand is

that of the relations between already existing economic givens: for example, in the determination of the level of price given the curves for supply and demand, or the determination of the supply curve, given quantities and prices. In the light of this H.L. Moore, quite correctly, characterised Marshall's method of study as "static and limited to functions of one variable".[7]

J.B. Clark, the influential American theorist of a generation ago, did, in Schumpeter's view, "take one basic step further than Mill's standpoint, which carefully defined the static state ... He also energetically put forward the postulate of a specific theory of 'dynamics'. [8] But this remained as a "postulate". In resignation Clark says of dynamics: "But the task of developing this branch of science is so large that the execution of it will occupy generations of workers.[9] In reality what Clark offers is a picture of an imaginary static economy: year after year the mass of workers employed and the number of capitals remain unchanged, along with the tools and techniques of production. No shifts of capital or labour take place from one branch of production to others, and consumer demand also remains constant. The principle of distribution is then investigated under these assumptions; this shows how prices, wages and interest on capital are formed in a static situation: commodities are sold at their "natural" i.e. cost price, so that manufacturers do not obtain a profit.[10] Clark admits: "This picture is completely imaginary. A static society is an impossible one".[11] "Actual society is always dynamic ... industrial society is constantly assuming new forms and discharging new functions." [12] But he draws no conclusions from this observation. Clark considers that static forces, isolated in this way, do nevertheless possess real meaning: they are constantly at work in the dynamic world as a fundamental component force, and indicate real tendencies.[13] But there is still more to come. Despite the fact that he stressed the "hypothetical" character of the "static state", and despite all his references to the dynamic essence of reality, Clark almost totally abandoned dynamics in his later principal work, *Essentials of Economic Theory* (1915), where he adopts a static picture of the economy and society. The static model asserts itself in a competitive economy — although not in an ideally pure form. As long as there is free competition, "the most active societies conform most closely to their static model". [14] The situation is much the same in contemporary society (with imperfect competition).[15] It is in fact precisely the capacity for movement which the elements of the real economy possess, which enables a static state to be attained so much more quickly than if these elements were less responsive. The "normal" (static) form asserts itself more effectively in the highly industrialised society of North America than in the rigid societies of Asia.[16] "The static shape itself, though it is never completely copied in the actual shape of society, is for scientific purposes a reality".[17] In short, "static influences that draw society forever toward its natural form are always fundamental and progress has no tendency to suppress them".[18] Exactly what the "dynamic" character of the economy consists in, and how disturbances can arise, has not been revealed by Clark. He presents "dynamic" development, with its rapid changes in the economic organism, as a temporal succession of different static states.[19]

This static character becomes even more pronounced in the pure theory of marginal utility. Dynamic change in the structure can hardly be reconciled with a construct which presupposes that production is directed by consumers (demand),

and that the economy can be reduced to subjective choices between different subjective uses. Structural changes are merely external facts, which the theory takes as presuppositions: but it does not study them or explain how and why they arise. Schumpeter could therefore note that "the great reform of theory through the subjective doctrine of value left the static nature of its system untouched ... In fact, the static character of theory gained substantially in rigour and clarity as a result of the new analysis".[20]

As Roche-Agussol confirmed, the main object of analysis of marginal utility theory was an "essentially static problem" — namely the valuation and distribution of goods "at a given stage of the means for satisfying needs, and of needs themselves".[21] The introduction of movement through time had to lead to the breakdown of this theory, even from its own standpoint, as it offered no way of predicting future needs and means for satisfying these needs. Fully conscious of this fact, Menger declares: "The conception of theoretical political economy as a science of the developmental laws of the economy is utterly monstrous ... It is tangible proof of the aberrations of judgement".[22] The theory expounded by W.S. Jevons, the other founder of the theory of marginal utility, is also decidedly static: Jevons operates with concepts borrowed from the science of mechanics (such as "infinitely small quantities") which he uses as a basis on which to erect his theory. "The laws of exchange resemble the laws governing the equilibrium of a lever, as they are both determined by the principle of virtual velocities".[23]

Although Jevons knows full well that all economic phenomena are in motion, and must, therefore, be dealt with in units of time, in Chapter III of his book he manages completely to exclude the time factor from his analysis by recourse to a methodological dodge. Right from the outset he dispenses with the idea "of a complete solution to the problem in its entire natural complexity" (that would be "a problem of movement or dynamics") and confines his analysis to "the purely static problem" of establishing the conditions under which exchange ceases and equilibrium is achieved.[24]

The marginal utility school has retained this character up until the present day: for reasons of space we have to restrict ourselves to a few typical examples. F.H. Knight, for example, although acknowledging that history never ceases and that "the evolution to other forms of organisation as the dominant type" is inherent in capitalism,[25] thinks that "such a social development falls outside the scope of the economic theorist", as the notion of equilibrium cannot be applied to such changes.[26] He refers the study of these changes to the science of history and comes to the conclusion, "that economic dynamics, in the sense which this expression should have in order to be applicable (in economic theory), does not exist. What is specified as being dynamics in it should be named revolutionary or historical economic theory".[27] Ewald Schams' view does not differ substantially from this. He considers that economics is a theory of "economic quantities", and that an understanding of the relations between variables and dependent variables necessarily requires the functional formation of appropriate concepts, and the construction of equations.[28] However, since the functional theory of relations, as is now admitted,[29] is necessarily static, since it investigates merely the relations between given quantities, Schams arrives at the conclusion (despite recognising the dynamic nature of the capitalist economy), that, since we do not

possess a specifically dynamic conceptual apparatus, which could capture dynamic changes, we must work with a static conceptual apparatus.

Mathematical economic theory, as a theory of relations, has no more possibility of development than geometry. Quite independently of whether "there is a stationary reality or simply an economy in complete motion", "logically defined statics will remain a presupposition".[30] Schams therefore directs his criticism at the two-fold division of theory into statics and dynamics. "Any quantitative economic theory is completely static." Economic movement can only be understood as the succession and comparison of various static states of equilibrium, as "comparative statics", "the comparison of the two states of dependent variables over a certain interval of time"[31] There can be no specific dynamic problems within mathematical economic theory, but, at most, theoretical problems which are no longer questions of mathematics; that is, theories relating to the development of economic realities. But these lie outside the scope of economic theory.[32]

The knowledge that the grasping of a number of interdependent movements and non-equivalent relations cannot be accomplished mathematically, has clearly led one part of the dominant theory to indulge in an intensified struggle against attempts to make theory more dynamic, and to a renaissance of static theories of equilibrium.[33] In Conrad's view, an economy which does not possess a central management is a "self-regulating mechanism, which seeks a state of rest, i.e. seeks to assume a uniform movement". The essence of "self-regulation" consists in the "mechanism being steered towards a stationary position" — "something which is never achieved, but which is the sole reason why an economy which lacks a unifying central management does not fall into chaos".[34] Conrad knows full well that there are crises and disturbances which cannot be regarded as movement towards a state of rest. The presupposition of the tendency towards equilibrium is therefore "that the regulative apparatus functions correctly (sic! H.C.)". If this is not the case, "then it is possible that the approach to the state of rest may be constantly impeded".[35]

Conrad believes that movement is a succession of states of rest: he does not try to conceptualise the states of non-rest between each of these states.[36] Alexander Bilimovic concedes that up to now theory has merely succeeded in determining the equilibrium equations for a stationary economy, but not for a dynamic one. This explains why "the schemes which have predominated up to now do not correspond to economic equilibrium in the real world". Despite this, these schemes are held to be capable of improvement, and Bilimovic hopes that it may be possible to construct a mathematical "model" which does not only apply to a stationary economy, as in his view the lack of success of previous attempts to make the stationary schemes dynamic cannot be attributed to any inherent fundamental defect.[37]

Is this two-fold division of theory not reminiscent of a similar plan expounded by Mill? And is it not also destined to remain just as barren as Mill's, in view of the fact that no bridge can lead from "statics" to "dynamics", especially not if this "dynamics" is conceived of as a succession of stationary states. For these are successive *static* states — states which were otherwise singled out for their persistence. The static mode of thought is unable to explain the development of new successive states precisely for the reason "that the equilibrium of static

analysis does not allow for growth, that this analysis can only describe an expanding system in terms of successive states of equilibrium with the intervening stages of transition left, and left with danger to the validity of the argument, unanalysed".[38]

These difficulties only really begin to arise when statics are no longer regarded as a real tendency but as a heuristic device, as there is even less of a bridge from this hypothetical situation which can lead to a reality moving through states of disequilibrium. "If the economic cycle's entire course is one of disequilibrium — neither cumulative downwards nor upwards — what is the point in regarding particular states of equilibrium as the point of departure or point of intersection of this movement?"[39] If one proceeds from the assumption of a static equilibrium, then the entire problem of dynamics is reducible to that of the factors which "disturb" this supposed state. This can be seen in the work of Haberler, for example, who considers that there is an inherent tendency towards equilibrium in the economic system. As far as he is concerned, the only fact which requires explanation in the course of the economic cycle is recession, "the long swing in the negative direction", but not the upswing, "since the upward movement, the approach to full employment, might be explained as a natural consequence of the inherent tendency of the economic system towards equilibrium".[40]

More recently still, the number of critics of the concept of "the stationary state" as a superfluous, because economically unreal concept, has multiplied among certain sections of bourgeois theory. As Hicks says, this group is forced to admit that, "the actual state of any real economy is never in fact stationary; nevertheless, stationary-state theorists naturally regarded reality as 'tending' towards stationariness; though the existence of such a tendency is more than questionable". "The stationary theory itself gives no indication that reality does tend to move in any such direction."[41] Still more, Hicks holds the concept of a stationary economy directly responsible for holding back the development of economics, because it neglected problems of dynamics.[42]

We can deal with the mathematical tendency quite briefly, as our concern is not to present an exhaustive critique of this school, but rather to bring out its static character.[43] "No presentation is more static than that of Leon Walras."[44] As a memorial tablet in the Lausanne Academy reads, Leon Walras was famed as the theorist "who first determined the general conditions of economic equilibrium". According to Walras, the economy can be compared with a lake whose waves may well be occasionally whipped up by a storm, but which subsequently subsides to form a new equilibrium on its surface. Although the economic disturbances to general equilibrium spread throughout the entire economic system, Walras simply regarded them as oscillations, whose amplitude falls over time until equilibrium is restored.[45] He does not ask whether perhaps such a static case is impossible to realise. On the contrary, Walras is convinced of the possibility of obtaining permanent equilibrium. "In order to be able to quell or prevent crises it is necessary to know the ideal conditions of equilibrium."

The same can be said of Pareto. Hicks calls Pareto's "*Manual*", "the most complete static theory of value which economic science has hitherto been able to produce".[46] Pareto distinguishes three areas of research: the theory of statics, which represents the most developed part of economic theory: the theory of

successive equilibria — “there are only very few ideas on the theory of successive equilibria”: and finally the theory of dynamics, which is concerned with the investigation of the movement of economic phenomena — “except for the specific theory of economic crises nothing is known of dynamic theory”. [47] Pareto himself contributed nothing to the investigation of dynamics, and in fact retarded it through his assumption that the above three-fold division of research actually corresponded to reality; [48] his sole concern was with statics. His central, in fact his only, concern was that of equilibrium [49] to which he devoted Chapters III-VI of his book; he never once indicates the bridge which leads from statics to dynamics. [50] Pareto underscores the significance of Walras’s equations for economic equilibrium, and allots them an analogous role to that of Lagrange’s equations in mechanics, in that he saw reality as a system of “continual oscillations around a central point of equilibrium”, and considered this centre of equilibrium to be a moving one. [51] Pareto never posed the question as to whether the concept of economic movement is compatible with that of equilibrium, and in fact excluded it by the insupportable assumption that all economic phenomena share a simultaneous and uniform rhythm. [52]

This static tendency in Pareto’s theory can be understood if one considers that his sole concern was with the relations between already existing values in the market — or in Pareto’s later formulation with choices between existing combinations of indifference. In his view equilibrium is achieved if two persons possessing a certain number of goods exchange them with each other on the market until the point where, with the approval of each of the parties, no further exchange is possible. The state of equilibrium which is thus attained can therefore be defined as “a state which will maintain itself indefinitely”, if no changes in the conditions take place or if these changes are so slight that the system “tends to reestablish itself and return to its original state”.

Pareto employs the concepts of “statics” and “tendency to equilibrium”, which are borrowed from mechanics, without looking to see whether they make sense in economics. The static character of his theory lies in his much-vaunted method of the general interdependence of all economic variables, the essence of any functional method of study, which was regarded as a modern miracle for a long time, and which dispenses with genetic explanation; it shows simply the relations between already given economic variables (be they utilities or indifference possibilities), but not the capacity of the system for movement, the development of these variables, and hence the direction in which the system is moving. If one wants to do this, it is necessary to look at the process of production as the source of all changes in “economic variables”: but this was excluded from Pareto’s analysis from the outset. [53] Although Hicks thinks that Pareto’s exchange equations could be extended to production processes, given certain corrections, he makes the reservation that they would only be valid for a stationary economy in which there was no accumulation of capital, and no other changes in the given world (Hicks says no net savings). But this makes Pareto’s equations, as Hicks admits, “remote from reality”. “They are not a depiction of reality”. [54]

As early as 1846, in his polemic against Proudhon, Marx wrote, “The relations of production of any society constitute a whole”. The same authors who stress the “general interdependence” of all economic variables and reject methods which seek to isolate and explain individual groups of phenomena from the process of

economic life, themselves break this totality down into individual sectors, into market phenomena separate from the sphere of the labour process, and make this artificially separated sphere of exchange the main object of their analysis. Pareto arrived at "equations for equilibrium" by dealing with the functional connection between given market variables[55] and excluding the dynamic factor of the production process or, in other words, by accomplishing the "complete dynamising of the system".[56]

The above example also shows how matters stand as far as the precision of the mathematical method is concerned, the method used to construct the system of equilibrium equations. This precision has no relation to the content of the findings of economic science, but is rather a feature of the techniques of mathematical calculation. Despite the precision of these operations, the mathematical method can be a source of very great error, precisely because of the assumptions which underlie the equations, and which in turn determine the value of the knowledge which this method yields.[57]

In its youthful enthusiasm, the mathematical school (Walras, Marshall, Edgeworth, Pareto and Boehm-Bawerk) believed it could measure everything and constructed a set of equations for equilibrium, behind which lay the assumption that utility is — in principle — measurable, or would be measurable if we had enough knowledge at our disposal. After one generation a more sober assessment was made. It was generally acknowledged, a fact only objected to by a few at the very beginning, that utility, as a psychological variable, cannot be measured and subjected to mathematical operations.[58] But if marginal utility is immeasurable, then so is aggregate social utility, and hence all the "equilibrium equations" which are constructed on this unreal basis are irrelevant. The critique of the marginal utility theory, which was originally made only by opponents of the mathematical school, was now practised by its supporters and led to the dissolution of the school.[59] However, the breakdown of marginal utility theory did not lead to the abandonment of equations for equilibrium, but rather to efforts to construct them on another basis. In his *'Manual'* Pareto took recourse in the concept of "ordinal" indifference curves: he intended to use this as a basis, supposedly taken from experience, on which to construct a theory of preference and its "equations for equilibrium".[60] Criticism proved the untenability of this theory by showing up the arbitrary nature of the assumptions behind the equations. The procedure employed by the mathematical school presupposed the infinite divisibility of goods, and the unlimited substitutability of the various goods (e.g. nuts instead of apples), in the satisfaction of needs; this created a gulf between the premises on which the indifference curve were based and those of reality.[61] The assumption of the infinite substitutability of goods leads to the most absurd conclusions when elevated to the status of a universal principle. For example, in the everyday consumption combination of bread and wine, a very little, or even a minimum, amount of bread can be "substituted" for by a lot of wine, or increasingly smaller amounts of meat by more and more salt.[62] These absurd results, and the indifference curves derived from them, along with the demand curves, price relations and positions of equilibrium, are not an approximate mirror of reality, but "in fact a grossly distorted picture of reality".[63]

If one considers the fact that for the solitary individual and the few commodities at their disposal, there are an infinite number of possible combinations

of indifference, one can see that if there were 40 million people and several thousand different types of commodities, "the time and energy of a whole generation would not suffice" to collect the incalculable amount of information needed to construct the hundreds of billions of indifference combinations. And the time and energy of further generations would never suffice to solve the equations which were constructed on this basis.[64]

The post-1918 monetary theories of crisis which spread in the 1920s are also static in nature: these were predominantly the Wicksellian, and neo-Wicksellian, efforts to overcome the business cycle and stabilise the economy, the value of money, and world prices, in a purely monetary way by means of the regulation of interest rates by the central banks.[65] Although Wicksell conceded that "in principle" the real causes of crisis stem from the commodity, this in fact plays no role in his thought as, in his view, the connection of the economy with credit had produced a shifting of the centre of gravity of the economic system towards the monetary side. An appropriate regulation of interest rates would cause "the real moment which produces crisis" to cease working and become reduced to "a gentle swell".[66] This is meant to apply not only to individual countries, but in fact predominantly to the world economy as a whole. It would then be simply a matter of the central credit organisations regulating their interest rates up and down in such a way "so that the international balance of payments remains in equilibrium, along with the general level of world prices, which should remain constant". It is precisely this static conception of the economy which is hailed by Hayek as "the most important basis of any future monetary theory of the economic cycle".[67] And in fact this concept does indeed underlie all the monetary theories of crisis (Irving Fisher[68] and R.G. Hawtrey). For the latter economic fluctuations are not of necessity bound up with the essence of the capitalist mechanism, "but rather arise because of the world-wide restriction of credit".[69]

The cycle of crises is consequently "a purely monetary phenomenon", and changes in economic activity, "the alternation of prosperity and depression", have as their sole cause "the changes in the flow of money". "If the flow of money could be stabilised, the fluctuations in economic activity would disappear".[70] and prosperity could continue indefinitely, and without limit.

It was the pressure of the great crisis of 1900-01, and then the economic disturbances of the post-1918 period which began to produce doubts within the dominant theory as to the correctness of the static conception. More attention was paid to the problem of crises, and empirical material began to be collected on past crises. The research institutes which were founded for the purpose of investigating these problems attempted, using this material, to establish the laws of behaviour of the economic cycle. This was the first time that attention was given to the material elements of the production process in addition to the value-aspect, and that the distinction between the production of means of production and the production of means of consumption was introduced into economic analysis, stressing their varying roles in the course of the cycle: the specific role of so-called durable "fixed" capital[71] was stressed as a cause of crisis — for example by Spiethoff and Cassel —, emphasis was given to the role of progressive technical improvements, the disproportion between the structure of the various branches of production[72] and the influence of the length of the period of construction on the course of the cycle (Aftalion).

These attempts turned out to be unsatisfactory as each of the authors simply took one, individual, isolated material aspect of the entire process as the basis of their theory of crisis, which gave these theories an accidental, eclectic character, resting on partial observations. The same can be said of J.W. Clark,[73] R.F. Harrod,[74] and L. Ayres[75] whose most recent attempts use the durability of the means of production as a possible basis for explaining the periodicity itself, and the pronounced fluctuations in the "capital goods" industries, (the accelerator principle). An attempt is made to explain the special problem of crises by means of individual observable correlations: this in fact leads to a severing of the connection with the theoretical basis of political economy, since these theorists feel that the older static theories of crises are less applicable for explaining a dynamic process. However, since, on the other hand, no conclusive dynamic theory in which the material elements are given a proper theoretical treatment has yet been constructed, these more recent investigations of crisis remain as specific theories of a particular branch of economics, lacking a broader theoretical basis.[76]

Only a very small circle within the dominant theory has perceived the lack of a general theory of dynamics. As H. Mayer stated "the unsatisfactory and inappropriate nature of previous theories was felt more and more". Because of their fundamental errors and conceptual apparatus these theories "could not take up and deal with certain problems thrown up by the actual course of economic events", "The evidently dynamic problem of the economic cycle and crises" could not be grasped by the "previous essentially static systems of price theory" because of its "purely static method of study" of the relations of exchange between given economic variables which "merely described already-attained price relations in a state of equilibrium". The problem of the "analysis of movements of economic reality required an insight into the process of the formation of prices".[77] As we showed previously, all these systems dispensed with the search for the overall course of the economic system in a particular direction, i.e. its developmental tendencies, and, in addition, were incapable of doing this as as they confined themselves solely to an understanding of the exchange relations between given variables. But these exchange equations show that all the quantities of goods or prices, which the economic subject disposes of are received as additions by others; hence all these increments (plus or minus) add up to zero in the total sum. There is no calculable remainder which could act as an indicator for a particular direction to the course of the system as a whole.[78] Similarly, the relations of exchange of the "economic variables" are not real movements, or processes in time: they are transcriptions of a timeless "movement" — a circular motion. However, if one wants to discover the particular direction of the overall course of the economy, one must investigate not only the relations of exchange of given variables, but also their development, growth and passing away or (as Mayer says) the process of "price formation". It is insufficient to look at relations of exchange; one must also study the production process as well as the process of circulation, i.e. the process as a whole. It then becomes clear that the positive and negative changes do not balance out to yield a zero, but that they assume definite values (e.g. the falling rate of profit). That is, they reveal the direction of movement of the system as a whole, its developmental tendencies. We can now see how the main task of theory, as Marx characterised it in *Capital*, namely the investigation of the "economic laws of motion" which was banished from the realm of theory by

the marginal utility school, finally appears in the foreground in the dominant theory too. This was the first time that a small group of theoreticians within the dominant school — Streller, Amoroso, Rosenstein-Rodan, Ricci, Morgenstern, Bode and others — turned, in principle, against the central argumentation behind the equilibrium theories, with its fictitious assumption of a simultaneous rhythm to economic events, criticism of which was meant to be preparation for the basis of a dynamic theory of the economy; this group observes that on the more realistic assumption of a variable rhythm of economic events “it would be a matter of coincidence if an equilibrium was established”. [79] The reason for this is that the tendency toward equilibrium is merely a possibility; an alternative is that due to the unsimultaneous rhythm of economic movements, the change of one operation “could bring about other changes: there would be a perpetual series of changes, the time coefficients would never be the same and there would be no equilibrium”. Theories of equilibrium would have to prove that this second constellation of time coefficients cannot take place. They have not been able to provide such a proof, and because of their assumption of a simultaneous rhythm in all economic processes, they have blocked the way to an understanding of problems of dynamics.

The “equilibrium system” of the mathematical school only exists by virtue of the fact that it represents “economics without time”. “The equilibrium system of the mathematical school, which embraces neither indices nor coefficients relating to time, can in no way capture the real state of equilibrium.” [80] The critique of the mathematical school does not single out one particular aspect of the theory or a particular axiom, but rather the theory itself, “as it offers the most precise formulation of one train of thought common to all economic schools, so that its proven defects affect all other formulations all the more acutely”. [81] The basic error of theories of equilibrium is not that “they have regarded moving, changing variables as invariable”, for if these movements were to share the same duration, if they were equi-temporal, the real course of the economic process could indeed be understood as a series of “successive equilibria”, of which each individual state could be defined by a system of equilibrium. [82] However, states Schams, at the moment when the theory proceeds to deal with non-equitemporal movements, i.e. to express explicitly the time factor “t”, “one encounters the static system at its weakest point, the assumption of a pseudo-constancy of economic periods”. [83] This is because any ranking of the time elements, i.e. varying periods of movement, shatters the equivalence of the relations which constitute the basis of the mathematical system behind the equations, and renders them no longer amenable to a mathematical solution. [84] It is easy to see why there was talk of the failure of economic theory, as it progressively lost all relation to reality. A theory which sees capitalism as a mechanism tending, through “self-regulation”, towards equilibrium, is incapable of understanding the economic developments of the last few decades — namely the attempts to establish such an equilibrium through the conscious monopolistic intervention which characterised this period.

The dominant theory is therefore faced with a dilemma. Mathematical economics could celebrate its “triumph” as long as it was governed by the idea of equilibrium. However, this failed to explain the dynamic movement of the economy. It regarded these movements as mere “oscillations” around a state of equilibrium or as temporary “disturbances” prior to the attainment of a new

equilibrium,[85] whereas reality exhibited long term movements away from equilibrium, in fact towards disequilibrium. The reason why all tendencies within the dominant theory stressed the static character of the economy and its capacity for adjusting to the changing needs of society, for over 100 years — from Ricardo to the present day — has clearly been the need to justify the existing social order as a “reasonable”, “self-regulating” mechanism, in the context of which the concept of “self-regulation” was intended to divert attention away from the actually prevailing chaos of the destruction of capital, the bankruptcy of firms and factories, mass unemployment, insufficient capital investment, currency crises, and the arbitrary distribution of wealth.[86] It is only by appreciating this that we can understand why the concepts of “statics” and “dynamics”, which originate in theoretical physics, were introduced into economic theory without any discussion as to whether such a two-fold division of theory was justified.[87]

The untenability of such a separation becomes clear when one considers that there are no “non-moving” processes in the economy: that the so-called “stationary” economy “moves”, and is a circular process. Hence the characteristic distinguishing feature of statics and dynamics cannot lie in the fact that one of them investigates non-moving, and the other moving and variable phenomena. Rather, we characterise as “static” a kinetic economic process which has reached the complete equilibrium of its movements, and as a result of the persistence of all the subjective and objective conditions repeats itself endlessly, in unchanged form, from one period to the next (a circuit).[88] Consequently, a dynamic economy should be understood to mean not a “moving economy” (since the “static” economy also moves), but rather an economic process which has not reached equilibrium, i.e. one which moves into disequilibrium in the course of time, which simply means that the conditions of the economic process change from one period to another, resulting in the eventual outcome of the economic process — the economic structure — also undergoing change.

Ever since Mill theory has been forced into this two-fold division: but only one aspect has been developed and worked on, — the static, the tendency towards equilibrium. The question of dynamics, and the necessity of “dynamising” theory has remained at the level of discussion without anyone actually being capable of constructing a conclusive theory of dynamics. Success in breaking away from the traditional dictatorship of these concepts has come only very slowly, and late. As Bode states, it has finally been realised that there is no sense in clinging to the concept of equilibrium, if in reality “there is nothing which seeks, passes through or leaves equilibrium”.

However, the discovery of the untenability of the equilibrium thesis has not made the position of the dominant theory any easier. On one hand, it now states that a dynamic theory is needed to explain reality: on the other hand, it is forced to admit that the construction of such a theory implies fundamental difficulties of principle.[89]

VI

The discovery which was only made by the most advanced minority faction of the currently dominant theory — and only then after the violent disturbances of the

World War — namely that a dynamic reality cannot be explained by arguments based on ideas of equilibrium, had already been stated by Marx in 1867 in the theory of the “dual character of labour”. This theory was argued through to its conclusion in Volume II of *Capital*, in the theories dealing with the various circuits of capital, and with the turnover time of capital. Marx was obliged to set foot here on a terrain that had never been entered before, and create all the categories and concepts which were connected with the time element (circuit, turnover, turnover time, turnover cycles); and he was completely justified in reproaching the Classical economists for having neglected the analysis of the time element — the form of the circuits and of turnover.[90] Such a disregard was understandable given the purely value-oriented mode of observation which they employed. In contrast to this, Marx’s conception of the dual character of all economic phenomena compelled him to look at the economy in its specific movement, not statically. The reason for this is that the capital which is advanced in the form of money can only maintain itself and grow by changing its natural form in the circuit, transforming itself from the money form into the form of the elements of production, and from these into the form of finished products, commodities. Capital must spend a given minimum period of time in each of these three stages before passing on to the next phase — a period which is objectively determined by the techniques of the processes of production and circulation. Capital “is a movement, a circuit-describing process going through various stages ... Therefore it can be understood only as motion, not as a thing at rest”.[91] The “production time” which was presented in Volume I of *Capital* is now followed, in Volume II, by an analysis of “circulation time”.[92] this not only has effects on the size of profit, but also gives Marx the opportunity to deal with the actual form of motion as such[93] — the question of the duration of the circuits, be this either in their coincidence or in their sequence, i.e. the conditions for the undisturbed transition from one stage to the next. “The circuit of capital can only proceed if the various phases can succeed each other without interruption”.[94] Marx demonstrates the theoretical conditions for such a normal circuit, conditions which in reality are only achieved by way of exception: the undisturbed course of the process requires the co-existence of capital in all its three natural forms. The normal “succession” of each part is conditioned by the “co-existence” of capital, i.e. by its constant presence in all the three forms: as money-capital, productive-capital, and commodity capital, and by the proportional division into each of these forms.[95] This simple formulation serves to hide the problem of dynamics. The “co-existence” of the three forms of capital is identical with their synchronisation, and hence presupposes given, and unchanged values — because they all fall into the same unit of time. This is the only instance when one can really speak of the “unity of the three circuits”.[96] In contrast to this, “succession” is a process in time, and consequently embraces the possibility of revolutions in value of the individual parts of capital, which must hinder the smooth transition of capital from one phase to another.[97] Hence, according to Marx, equilibrium would only be possible under the unrealistic assumption of the constancy of both values and techniques.[98] Since in reality this condition cannot be realised, the circuit of capital must move “abnormally”, i.e. in disequilibrium.

The entire presentation is crowned by the analysis of the “turnover of

capital", where the circuit of capital through all three stages is to be understood "not as an isolated process, but as a periodic process". The duration of this turnover, given by the sum of production time and circulation time, is called "turnover time", and measures "the interval of time between one circuit period of the entire capital-value and the next, the periodicity in the process of the life of capital or, if you like, the time of the renewal, the repetition, valorisation or production of one and the same capital-value".[99] Finally, following the presentation of the turnover of individual capitals, Marx arrives at the presentation of "Aggregate Turnover of Advanced Capital. Cycles of Turnover",[100] which he uses within the overall argument, to stress those elements which work in the direction of disequilibrium.

In his schemes of reproduction Marx proceeds on the assumption of an identical turnover time of one year for all capitals in all branches of production. But whereas for the dominant theory the synchronisation of all movements represents a definitive methodological observation, for Marx it merely represents a preliminary, simplifying assumption, a first step in the process of getting closer to reality. He later acknowledges the fact that in reality "the turnover times of the capitals vary according to the sphere of investment", with the variation in turnover time being dependent on the natural and technical conditions of production of each species of commodity (natural produce, leather etc.).[101] In addition to these circumstances which are the product of the process of production and "which distinguish the turnover of different capitals invested in different branches of industry" we have to add those which are the product of conditions in the sphere of circulation (for example, improved means of transport and communication, which serve to reduce the travelling time of commodities).[102] It is clear that all these variations in total turnover times must produce a disequilibrium in the system, when one recalls that the original equilibrium in the equations for the schemes of reproduction only held under the assumption of an equal turnover time for all capitals.

And on top of these sources of disequilibrium, which flow from variations in the total turnover time of the capitals in the various branches of production, come additional differentiating factors within each branch of production, due to the different turnover times for the fixed and circulating parts of capital. As regards circulating capital, Marx analyses the temporal relation between the working period and the period of turnover, since the size of the circulating capital which functions through each of these periods is determined by their respective durations. Out of the three possible variants — that the working period is the same as, longer than or shorter than the period of circulation[103] — only one allows the undisturbed transition of the capital functioning in the working period into the circulation-phase, namely the first, "where the working period and the circulation time each constitute equal halves of the period of turnover".[104] The same applies in the case where each of the periods may not in fact be equal, but where the period "is an exact multiple" of the working period: for example, where the working period is three weeks, and the period of circulation six, nine or twelve weeks.[105] The process of turnover only proceeds "normally" under these "exceptional circumstances", which in reality only occur by chance.

In all the other cases, i.e. for the majority of the social circulating capital, a

modification to the "normal course" occurs during the one year, or more than one year, cycle of turnover. This takes the form of the "release" or "tying up" of the advanced circulating capital,[106] and creates the objective basis and subjective impulse towards the expansion, or contraction, of the given scale of production itself, in place of the originally assumed "normal" transition from the working period to the period of circulation, at an unchanged scale of production. These impulses do not come from outside, but are endogenous, "through the sheer mechanism of the movement of turnover", i.e. from the temporal differences between the working period and the period of circulation.[107] Far from being a primary cause of changes in the scale of production (as is supposed by the monetary theorists) credit expansion and contraction are dependent variables, governed by the mechanism of the turnover of capital.[108]

In similar fashion, the time factor (the durability of the means of production) constitutes the basis for the distinction between fixed and circulating capital. The means of labour employed in the production process only constitute fixed capital "to the extent that the period of their use exceeds that of the turnover period of circulating capital".[109] i.e. to the extent that the "turnover of the fixed portion of capital also therefore comprises the turnover time of a number of turnovers of the circulating portion of capital".[110]

This difference in the length of life of each type of capital produces a variation in the replacement of each type of the means of labour, to the extent that we do not look merely at the value aspect (as replacement of money), but at the same time at the process as replacement in kind. Whereas labour power and those means of production which represent fluid capital (raw materials) are used up in a short period of time, and must therefore be constantly renewed, the replacement of fixed capital in kind does not occur continuously, but rather periodically.[111] Marx uses this difference in the time periods necessary for the replacement of both types of capital in the form of money and in kind, as one of the elements ("the material basis") for his explanation of the periodicity of crises.[112]

As long as the process of reproduction, and the problem of equilibrium are regarded exclusively in terms of value, the problem under consideration here will simply not arise, as the distinction in the lifetime of fixed and fluid capital applies to their natural form, not their value. If one looks at Marx's scheme for simple reproduction purely from the point of view of value, and assumes an annual renewal of all the parts of capital, the resultant synchronisation of the movements in the scheme would obliterate the specific difference between fixed and circulating capital,[113] and hence and whole problematic connected with the varying replacement times. This is because in the scheme, both fixed as well as circulating capital, as values, are renewed annually. The problem first arises when one looks at the scheme from the aspect of use-value: at this point the difference in the life of each kind of capital becomes apparent, and hence too the problem of different dates for their replacement. (The originally assumed synchronisation of replacement dates was only a preliminary approximation, which does not correspond with reality). Whereas raw materials have to be renewed annually, fixed capital (for example the 2,000 units in Department II of the scheme (which manufactures consumer goods) "is not renewed during its whole time of function-

ing" because its life adds up to several years.[114] Consequently, there can be no sales from Department I, which manufactures fixed capital, to Department II, for several years. However, since the annual productive capacity of Department I remains at 2,000 units, overproduction must take place there. "There would be a crisis — a crisis of overproduction — in spite of reproduction on an unchanging scale".[115] So, "normal" production could only take place in Department I if (despite the assumption of simple reproduction in Department I) Department II was to be expanded over a number of years,[116] thus creating a new, additional market for Department I each year, (accelerator principle).[117] However, this is impossible, as the more rapid growth of Department II, on the basis of a given technology, presupposes an impossible increase in the working population. Department II would have to be doubled in the second year, and increased three-fold in the third; the growth in the working population employed there would therefore have to go up by 100% in the second year of reproduction, 50% in the third, and 35% in the fourth!

In addition to the reasons for the absence of an equilibrium which we have already mentioned, there exists a much more fundamental and general one, which is a product of the structure of the capitalist mode of production and the tensions which are founded in the dual character of this mode of production.

Both pre- and post-Marxist theory confine the conditions for "equilibrium" to sub-markets,[118] and then express them solely in terms of value. The relation between quantities and values is only analysed from the perspective of how variations in quantity affect marginal values. An "equilibrium" can always be obtained given such assumptions.[119] In contrast to this Marx showed that the issue is not that of equilibria in sub-markets (money-market, labour-market, commodity market for the means of production or consumption), or equilibrium in the "production process" or the "circulation process". Rather, because Marx understood the capitalist process of production as a "process-in-circuit" of capital through all its various stages, he stressed the idea that equilibrium has to be seen and understood as an equilibrium within the overall framework of all these stages. Starting from this perspective, he first carefully defined the state of equilibrium for the "process as a whole", and analysed the conditions which allowed it to arise; but at the same time he showed that these conditions cannot be realised within the capitalist mode of production. This signifies however, that in Marx the "normal course" of the "state of equilibrium" does not mean an "average", "typical" or "most frequently occurring" process, but rather an imaginary, undisturbed course of reproduction (under fictitious conditions), which never comes about in reality and merely services as a methodological tool of analysis. As a total social process the problem of reproduction has to be dealt with in its dual character: that is, "this process of reproduction must be studied from the point of view of the replacement of the value as well as the substance of the individual component parts of C'.[120] Consequently, equilibrium would only be realisable when both sets of conditions — those relating to value, and those relating to use — are simultaneously fulfilled.

A comparison of these two sets — "the component parts of the value of the social product with its material constituents"[121] — yields Marx's specific formulation of crisis, and its solution. In the circuit C...C' the conditions of social

reproduction are discernible precisely from the fact that it must be shown what becomes of every portion of value of this total product, C'''.[122] This means that not only must all the commodities produced be sold on the market, without a remainder, in terms of value, but what subsequently happens with the use-values, the material mass of things, which has been purchased must also be investigated: to see whether they can in fact be completely used up in the production process (equilibrium in production),[123] including individual consumption. The question is therefore one of the "reconversion of one portion of the value of the product into capital and the passing of another into individual consumption; ... and this movement is not only a replacement of value, but also a replacement in material and is therefore as much bound up with the relative proportions of the value-components of the total social product as with their use-value, their material shape".[124]

What has been said is already sufficient to show that the position often asserted in economic literature to the effect that Marx held use-values to lie "outside the sphere of investigation of political economy" is based on a misunderstanding. Marx states in fact that "use-value as use-value" is outside the scope of political economy, i.e. use-value as subjective utility.[125] He counterposes to this use-value "as material shape", which is not a subjective utility, but an objective thing with a definite, economically significant form,[126] with a natural form, which is either exchanged on the market or functions in the labour-process as a means of production. Consequently Marx speaks of "use-value or object of use", of use-value or "material form", of use-values "and the physical body of the commodity", of the "sensuous objectivity of the bodily form of the commodity", and of the "quantity of the means of production" — as distinct from values themselves.[127] Use-values defined in this way are of crucial importance in Marx's system.[128]

The influence of the dominant theory has meant that Marxist literature has also dealt with the problem of equilibrium — insofar as its conditions are specified in Marx's "Tableau Economique" — exclusively in terms of value. (Kautsky, Hilferding, Bauer, Luxemburg and Bukharin). There have to be certain quantitative proportions of value in each of the Departments of Marx's schemes of reproduction if all the amounts of value supplied and demanded are to be exchanged without a remainder. The analysis of the material aspect, of the labour-process, was reduced to the single thesis that in the process of reproduction Department I must produce means of production, and Department II means of consumption.

However, Marx's conception is fundamentally different from the above. He shows that definite technical proportions must exist between the mass of labour and the mass of the means of production (machines, raw materials, buildings), in all the Departments and Sub-Departments of the schemes of reproduction, in addition to the value proportions; this depending on the particular character of the sphere of production under consideration. In control of the technical labour-process, the amount of value represented in the use-values is quite immaterial. [129] The technical proportionality of the factors of production is arranged directly in the factory by the technical management. However, as far as the mutual relation of the various branches of production within society is concerned, this proportionality is the basic condition for the undisturbed course of the

production process, as the social division of labour makes the various preceding and subsequent stages of the labour process vertically dependent on one another, as "limbs of the total labour". Despite any apparent personal independence, the producers soon discover that "the independence of the individuals from each other has as its counterpart and supplement a system of all-round material dependence". [130] The full employment of all productive factors in the technical labour-process, with neither unused capacity nor shortages of raw materials, machines or labour, is only possible given such a technical articulation and complementary quantitative harmonisation of the various branches of industry.

In short, the condition for the equilibrium of the system of capitalist production as a whole involves a dual proportioning of its basic elements. Whereas all that is required for the complete disposal (of the product) on the market is a value proportion within the realm of each individual branch of production, the technical labour-process requires a quantitative proportioning both between branches of production and of the factors of production within each branch, which is determined by the state of technology. These technical proportions are no more given from the outset in the capitalist mode of production than the value proportions, since the "quantitative articulation of society's productive organism is haphazard and spontaneous". [131] But is there any chance at all of this dual proportioning being realised? This question is at the heart of Marx's understanding of the problem of equilibrium in the "process as a whole", which is the unity of the technical labour-process and the value-based process of circulation. Where this approach differs from the dominant view can be seen most clearly in the example of simple reproduction.

"The assumption is that a social capital of a given magnitude produces the same quantity of commodity-value this year as last, and supplies the same quantum of wants" (i.e. supplies the same mass of use-values). Does an equilibrium in reproduction exist in the case of, for example, a bad harvest reducing the amount of cotton by a half, although it represents the same value as twice as much cotton did previously? In short, "if the value remains the same although the mass of use-values may decrease"? [132] Seen in terms of value there would still be "an equilibrium of exchange" in the scheme for simple reproduction; in contrast to this, the scheme would necessarily exhibit large disturbances when looked at from the standpoint of the technical labour-process: half of the spindles and looms would have to be shut down because of a shortage of cotton, i.e. the technical scale would be halved. Reproduction cannot proceed on the same scale. [133] This example shows what is unsatisfactory about purely looking at value, as the dominant theory does. The latter assumes that the conditions for equilibrium which are expressed in the value equations can always be realised. Although they know that capitals which are immobilised within a branch of industry can only be shifted with difficulty to other branches, they nevertheless treat such instances as "frictions" which merely impede the realisation of value-equilibrium for short periods. In contrast, the theory regards "adjustment" for longer periods as eminently possible, as the question here is not so much that of the transfer of already immobilised old capitals, as of the investment of new capital; i.e. "processes of adjustment" within production, which allow the subsequent reestablishment of the correct value proportions on both sides of the exchange equations. Against this, Marx shows that the value-equilibrium, which is

asserted by all static theories, and which the economy is supposed to tend towards, can only be established by chance or exception. This is because the technical labour-process gives rise to resistances and blockages of an objective and enduring kind which, in principle, exclude the establishment of such an equilibrium. Even if, when seen from a purely physical point of view, complete freedom and free mobility of capital were to exist, and the requisite transfers needed for the establishment of equilibrium as set out in the value equations were to take place, the equilibrium of the system as a whole would not be attainable, due to the incongruence, in principle, of the value proportions and technical, quantitative proportions. It may well be possible for a temporary, particular, equilibrium to occur, e.g. a value equilibrium on the market (for products); but it would then turn out that an equilibrium in production did not exist, and that the various elements of production cannot find a use or, conversely, that although an equilibrium in production might exist, there would be no equilibrium of value on the market. What follows from this is that given a particular quantitative technical proportion, which is the necessary product of the scale of production and depends on the size of fixed capital,[134] there is a value proportion which is the result of this technical proportion; it cannot be changed according to the free will of the capitalist in order to fulfil the theoretically postulated conditions for value-equilibrium. In short, the value proportion is less elastic because it is bound up with the technical proportion. Given these circumstances, the incongruence of both sets of proportions, and hence the tendency towards the disequilibrium of the system as a whole is unavoidable. On the basis of capitalist production, equilibrium — the “normal course” — is simply our own abstraction, a conceptual fiction, a derivation of a “true understanding”, which is the opposite of our abstraction, namely constant disequilibrium. “In political economy law is determined by its opposite: the absence of laws. The real law of political economy is chance.”[135]

Marx does not only deny the regulatory function of the price mechanism, which brings about a tendency for supply and demand to balance out, but also shows that once this mechanism has got into a state of disequilibrium,[136] it continually produces forces which magnify it. Because of the fact that too much has been produced, there is a drive to produce still more! Ever since Adam Smith, the dominant school has only been able to propound the theory of the adjustment of the volume of production to demand by using competition, because they presupposed competition as something given, as a kind of “occult quality”, without analysing its origins. Competition takes on the role of explaining the entire lack of concepts of the economists, whereas, conversely, the economists should have explained competition.[137]

In contrast to the dominant view, Marx showed that no mechanism of equalisation exists, in the sense of an adjustment of production to demand. For Marx an orientation to consumption, i.e. adjustment of production to demand, was a characteristic of capitalism’s youth, the period before the arrival of modern large-scale industry, when there was as yet no large fixed capital.[138] There can be no talk of such an “adjustment” of production to demand in the present-day, where fixed capital constitutes a predominant, and growing, share of total capital: the industrialist ignores the “command of the market” to curtail production, which is supposedly expressed in falling prices. In fact, the characteristic of the highly

developed capitalist economy is that it is directed towards production rather than consumption, i.e. production precedes demand, which results in an inherent tendency, for reasons dealt with previously, to the periodic over-production of durable "fixed" capital, for which no profitable use can be found.[139] But because there is a tendency to overproduction in the sphere producing fixed capital, a form of competition necessarily arises which does not operate to equalise supply and demand. Where overproduction means there is no living-space (market) for all firms, the individual firm finds it necessary to save itself from collapse at the expense of all the others. Far from curtailing output when prices and profits are falling, every firm with access to the necessary means seeks to produce more cheaply than its competitors, and at a profit, by introducing improved and cheaper techniques and by an expansion in the scale of production. Hence, the constant overproduction of fixed capital constitutes a permanent force for the continuous revolutionising of the techniques of production, and through this for constant revolutions in value, which are a characteristic feature of the capitalist mode of production.[140] And although the constant improvements in techniques and the expansion of the scale of production aggravate the general overproduction, the individual capitalist has, nevertheless, secured the profitability and markets for his own progressive plant.[141]

Thus, the pressure of the initial overproduction serves to propagate the transformation of the entire structure of the capitalist mechanism over the whole breadth of society: at one pole, the victory of the new, higher, technology and, at the same time, the enlarged scale of the individual plant; the extra profits which are thus attained attract new entrants, the movement becomes more generalised and an "upswing" occurs. But this does not prevent that at the other pole of society, an increased threat is simultaneously posed to all those plants with backward techniques, because of falling prices and overproduction, along with pressure to withdraw altogether from competition, precisely as a result of the spreading of improved techniques and associated revolutions of value (reduction in "socially necessary labour time"). However, since the scale of those few new large plants exceeds the productive capacity of the many small plants which fail, the end result of this movement is a growth in the overall scale of production in society. This movement takes place repeatedly, as the new plants with the most modern techniques soon lose their privileged position because of the generalised application of technical innovations, which means the whole game must continuously restart.

Under the pressure of periodically occurring overproduction, the drive towards the constant revolutionising of techniques, and hence "periodic revolutions in value" is strengthened. The capitalist who yesterday was able to make a surplus profit by the introduction of new processes, is today threatened by newcomers with even better techniques, and has to be content with the average level of profit: tomorrow he may not even cover his costs or may even register a loss, and will have to pull out of the market.[142] It is a permanent hunt for extra profit, a continual attempt to secure a privileged island, if only temporary, of surplus profit for the individual capitalist's own plant by the revolutionising of techniques. The "real movement" which we have described shows that one cannot speak of an "adjustment" of production to demand; rather, production constantly races ahead of demand, and the "regulative" function of the price mechanism

does not in fact operate. Far from leading to cutbacks in production, periods of falling prices were in the past, and still are today, periods of exceptional technical progress and expansion in production. In the face of this now evident failure in the construction of the prevailing economic mechanism, even the ruling theory begins to discover that instead of the alleged tendency towards equilibrium, there exists a '*perpetuum mobile*' of change, a tendency towards disequilibrium:[143] that instead of the regulatory function of the price mechanism, equalising supply and demand, situations can arise where "once destroyed, equilibrium is lost forever".[144]

A theory of dynamic movement must not only point out individual dynamic "factors", but also illuminate the disequilibrating movement of the system as a whole, and its causes; and beyond that has to show the consequences of the dynamic movement for the system as a whole. In one self-contained theory Marx tried to capture not only the course of the economic cycle, but also the structural changes in the overall system which were its product. Only by doing this could he show the direction the system was taking as a whole, its "developmental tendencies". This is not contradicted by the fact that at a particular level of development the direction of the process, which has been described, encounters a barrier, and is brought to a close. The validity of the theory is not put in question if it is shown that this barrier to the capitalist dynamic is caused by and derived from the basic conditions of the system — the "dual character of labour".[145]

We have seen how the development of the capitalist mode of production is accompanied by a tendency towards the growth in the minimum size of plants — and hence also a growth in the capitals which are required to run a business under "normal" conditions.[146] It follows from this that, at a given scale of production, the size of plant does not depend on the free will of the businessman. "The actual degree of development of the productive forces compels him to produce on such and such a scale." [147] This is therefore something which is technically given. It is evident that this makes the consonance between the technical proportions and the requisite value proportions all the harder to achieve. In the course of capitalist development the tendency towards the growth in the organic composition of capital makes itself felt. A continually larger portion of a given capital is transformed into means of production (MP), and an ever smaller portion into labour-power (LP).[148] Looked at from the aspect of value, the relation $c:v$ does indeed grow; nevertheless, because of technical progress (cheapening, in value terms, of the means of production) this relation grows more slowly than the quantitative increase of the relation MP to LP. It is clear that the difference between the value and the quantitative rates of growth of capital renders the congruence of the value and the physical proportions all the more difficult.

In addition, the analysis of the technical labour-process yields the law of the uneven development of the individual branches of production.[149] In fact, the example of the disproportionality in development best serves to illustrate the distinction between Marx's view and that of the dominant theory. The latter conceives of uneven development in the form of capital accumulation in different branches of industry having different values, e.g. 20% in one, 35% in another etc., from which the value disproportions give rise to disturbances. According to Marx this can happen, but does not have to; and it does not get to the real essence of the problem. Even if accumulation were to have taken place evenly, in value

terms, in all spheres, e.g. by 1%, disturbances must necessarily arise if the expansion in terms of material is not the same in all branches of production; this is because with the same percentage growth in capital (e.g. 1%) in all branches, the material expansion in the various branches can vary in size, and can amount, for example, to 5% in one sphere and 20% in another. This is determined by the specific technical characteristics of each sphere, and in Marx's view, it is these characteristics which underlie the strides in technical development.[150]

Related to the above law, but not identical with it, is the contradiction between an — abstractly — possible, steady accumulation of value, and the actual fact of a discontinuous, uneven material expansion. Vulgar Marxist literature is very fond of looking at accumulation in purely value terms and assuming that any desired amount of value can be accumulated (see, for example, Laurat); that 50% of the surplus-value is consumed by the capitalist, and the other 50% steadily accumulated each year. Whether the half of the surplus-value which has been accumulated is sufficiently large to purchase the amounts of means of production required for the expansion of production was not asked. Behind this view lies the assumption that any small increase in profit can correspond to an equally small growth in the technical apparatus of production — i.e. the assumption of the infinite divisibility of goods. In contrast to this, Marx stresses that such a parallel relation between value accumulation and material accumulation does not exist because not every dollar earned can be accumulated, i.e. converted into the material elements of production. In order to expand the scale of production a certain minimum amount of capital is usually required which represents a whole set of technically linked machines, making up a unity (e.g. in the textile industry).[151] Expansion can only take place, therefore, with this unity, or multiples of it.[152] Such material relations — and hence also the value relations which they imply — consequently determine the minimum size of the money capital required for expansion, and vary from industry to industry.[153] In short, in Marx's view, "the proportions which the expansion of the productive process may assume are not arbitrary, but prescribed by technology". For example, whereas the entire surplus-value (or part of it) may be sufficient for the expansion of production in one branch, and will be thus employed, in another the surplus-value may have to be saved up for several years until it reaches the minimum size needed for "real accumulation".[154] Consequently, whereas one branch of production may be able to grow every year, expansion in others can only take place at intervals of several years.

The incongruence of the value aspect and the material aspect of the process of reproduction which we have looked at from the side of production is increased still more by forces coming from the demand side. A uniform proportional expansion of all the spheres of production rests on the hidden assumption that demand (consumption) can also be expanded in an even and proportional manner. In opposition to this Marx emphasises that the individual productive use of certain commodities is tied and inelastic, which must likewise result in an uneven material expansion of production in the various spheres. No one who finds two tractors sufficient for the cultivation of their land will buy four simply because their price has fallen by a half, as the demand for tractors — all things being equal — is not a function of their price, but of the acreage of land, i.e. it is determined quantitatively. "However, use-value — competition — depends not on value, but

on the quantity. It is quite unintelligible why I should buy six knives because I can now get them for the same price that I previously paid for one".[155]

All these moments serve to make a uniformity of motion of the technical and value aspects impossible to achieve, and to hinder the dual proportioning of the development of the productive apparatus, in both value and quantitative terms, which is postulated by economic theory as the condition for "equilibrium". This equilibrium is incapable of realisation as a permanent "rule". With the constant impulses to the revolutionising of techniques and values, the coordination of the value and material aspects of the productive apparatus must become continually more difficult, and their incongruence continually grow. Each of the aspects of the productive apparatus moves in opposite directions in the wake of technical change and the development of the productive forces: the values of individual commodities have a tendency to fall, whilst the mass of the material goods increases. Under such circumstances equilibrium, the "rule" which is presupposed by political economy, can, as it were, only occur by chance within the general irregularity, as a momentary transitory point in the midst of constant disequilibrium.[156]

NOTES

- 1 *Theories of Surplus Value, II*, p.497.
- 2 Mill, *Principles of Political Economy*, Chap.1.
- 3 "The main problem now is to proceed from static to dynamic economics". (John M. Clark, *The Relation Between Statics and Dynamics* op. cit. p.46).
- 4 Cf. H. Grossmann, *Das Akkumulations- und Zusammenbruchsgesetz des kapitalistischen Systems*, Leipzig, 1929, p.284.
- 5 "The general theory of equilibrium of demand and supply is a fundamental idea running through the frames of all the various parts of the central problem of distribution and exchange." (Alfred Marshall, *Principles of Economics*, 1st Ed. London, 1890, Preface p.IX.).
- 6 "When demand and supply are in stable equilibrium, if any accident should move the scale of production from its equilibrium position, there will be instantly brought into play forces tending to bring it back to that position." (op. cit. Book V, Chapter III, Sect. 5, p.404).
- 7 Marshall was conscious of the weaknesses of his construct, namely its unrealistic character. "He recognised the impossibility of solving real problems by his method unless his hypothetical, static constructions could be replaced by concrete, dynamic functions", which he hoped would follow the improvement of the mathematical "scientific machinery". (See Moore, *Synthetic Economics*, New York, 1929, p.93). Hicks also emphasised this static character of Marshall's construction, stating, "how reluctant Marshall is to abandon static conceptions even in this dynamic analysis ... His dynamics are not made easier by running in terms of a very static equilibrium and by the fact that their central passage leads up to the introduction of the 'famous fiction', the stationary state". Also, the Marshallian distinction between "short" and "long periods", with the further supposition that a "full adaptation" between

- supply and demand will occur in the latter, "is not a concept that fits very well into a general dynamic theory". (J.R. Hicks, *Value and Capital*, Oxford, 1939, p.120-121).
- 8 Joseph Schumpeter, *Theorie der wirtschaftlichen Entwicklung*, op. cit. p.86.
- 9 J.B. Clark, *The Distribution of Wealth*, New York, 1899. Quoted from the 2nd Ed. 1931, p.442.
- 10 *ibid.* p.400 and pp.VI-VII.
- 11 *ibid.* p.400.
- 12 *ibid.* p.VI and p.30.
- 13 "The static state which has here been pictured is the one towards which society is at every instant tending." *ibid.* p.402.
- 14 J.B. Clark, *Essentials of Economic Theory*, New York, 1915, p.195.
- 15 "The actual form of a highly dynamic society hovers relatively near to its static model though it never conforms to it." op. cit.
- 16 *ibid.* p.197.
- 17 *ibid.*
- 18 *ibid.* p.198.
- 19 *ibid.* p.196. A more recent critic of Clark says, quite correctly, that as a result of all his abstract assumptions the picture of reality which he projects is totally alien to reality. "Such an isolation of static forces, it is admitted, gives to the study an unlikelike appearance and makes it 'heroically theoretical'." (Paul T. Homan, *Contemporary Economic Thought*, New York, 1928. p.38).
- 20 Joseph Schumpeter, op. cit. p.86.
- 21 Roche-Agussol, "Die Werttheorie" in *Wirtschaftstheorie der Gegenwart*, Vienna, 1932, Vol.II, p.36.
- 22 Carl Menger, *Untersuchungen über die Methode der Sozialwissenschaften und der politischen Ökonomie* (1883) in *Series of Reprints of Scarce Tracts in Economic and Political Science*, London, 1933 p.29.
- 23 W.S. Jevons, *The Theory of Political Economy*, London 1879, Preface.
- 24 *ibid.* p.89-90.
- 25 F.H. Knight, "Statik und Dynamik" in *Zeitschrift für Nationalökonomie*, Bd.II (1931). p. 25.
- 26 *ibid.* p.26.
- 27 *ibid.* p.7.
- 28 Ewald Schams, "Komparative Statik" in *Zeitschrift für Nationalökonomie*, Bd. II (1931) p.46-8.
- 29 Cf. H. Mayer, "Der Erkenntniswert der funktionellen Preistheorien" in *Wirtschaftswissenschaft der Gegenwart*, Bd.II (1932).
- 30 Schams, op. cit. p.49.
- 31 *ibid.* p.49-50.
- 32 *ibid.*
- 33 One interesting additional reason why — despite the acknowledgement of the dynamic nature of reality — there is a passionate struggle waged against attempts to "dynamise theory" and directly introduce the time factor into analysis is cited by Schams. If one sees economics as "economic mathematics", then the mathematical method will prove indispensable in the "exact" treatment of complex mathematical relations, which cannot be mastered by means of the "conventional logic". The most important methodological

principle in the construction of such mathematical systems is the "equivalence of relations, i.e. the construction of equations in which the numerical variables can be expressed" (op. cit. p.48). However, this method places one right in the centre of statics, as the functional method can only represent relations between given values and quantities, but not their formation. If one now introduces movement, i.e. change through time, what will happen is that "the law-like nature of the disproportional movement will destroy the equivalence of the relations" as Schams freely admits. "The simultaneity of more than two independent movements cannot be dealt with mathematically" (op. cit. p.49). "The use of differential and integral equations is scarcely possible with non-equivalent relations." However, if one does not proceed from given prices and quantities, and introduces change through time, one is faced with the task of dealing with future changes, and instead of establishing the exact relations between given variables one has to be content with "the calculation of correlations and price-expectations". In doing this, however, one turns one's back on exact theory and "enters the company of the dice-throwing probability theorists" (op.cit.). The "exact" mathematical method, originally designated as being indispensable, as it was supposed to be the best means for the exact investigation of reality, is now raised to the level of an end in itself. Reality is dynamic, but since it is impossible to capture dynamic movement, one restricts oneself to statics, so that one can avoid having to dispense with the "exact" method of mathematics.

- 34 Cf. Otto Conrad, "Die Grundannahme der Gleichgewichtstheorie" in *Zeitschrift für Nationalökonomie*, Bd.VII (1936), p.243.
- 35 *ibid.* p.236.
- 36 *ibid.* p.239.
- 37 M. Lachmann similarly sees "a dynamic theory of equilibrium" as being one which is concerned "with changes in equilibrium through time and describes the process of the transition from one equilibrium to the next". The difficulties surrounding the theory of dynamics are difficulties of either its principles or content, and are more to be attributed "to the deficiencies of our analytical tools" (M. Lachmann, "Preiserwartungen und intertemporales Gleichgewicht" in *Zeitschrift für Nationalökonomie*, Bd.VIII (1937), p.33-4.
- 38 Cf. Harrod. op. cit. p.496.
- 39 Alexander Bilimovic, "Zur Verteidigung der Gleichgewichtsidee" in *Zeitschrift für Nationalökonomie*, 1937, pp.220-224.
- 40 G. von Haberler, *Prosperity and Depression*. Geneva, 1937. p.167.
- 41 J.R. Hicks, *Value and Capital*, op. cit. p.119.
- 42 *ibid.*
- 43 Hicks considers that Knut Wicksell should be included in the Lausanne school, alongside Walras and Pareto, because he thinks just as statically as the other two. Wicksell's "capital theory is limited to considering the artificial abstraction of a stationary state" (op. cit. p.3.).
- 44 J. Schumpeter, *Theorie der wirtschaftlichen Entwicklung*, op. cit. p.86.
- 45 L. Walras, *Éléments d'économie politique pure*, 4th Edn. Paris, 1926. p.261-74.
- 46 J.R. Hicks, "A Reconsideration of Value" in *Economica* (1934), p.52.
- 47 V. Pareto, *Manuel d'économie politique*, Paris, 1909, p.148.

- 48 "This division corresponds to concrete reality" (op. cit. p.147). As if we had two different objects of perception, a static and a dynamic economy, alongside one another!
- 49 "The principal object of our study is economic equilibrium."
- 50 *ibid.*
- 51 Rosenstein-Rodan consequently says correctly, "No doubt, mathematical, as any static theory, only wishes to explain tendencies to equilibrium, and understand the real course of the economy as deviations from the state of equilibrium". "In this it is supposed that a state of equilibrium will develop after numerous oscillations, which will then continue to exist unchanged." (Rosenstein-Rodan, "Das Zeitmoment in der mathematischen Theorie des wirtschaftlichen Gleichgewichtes" in *Zeitschrift für Nationalökonomie* Bd.I 1929. p.136).
- 52 The supposition that economic phenomena share a simultaneous rhythm was explicitly emphasised in Pareto's *'Manuel'* (III Chap.10); the same applies to a successor of Pareto, De Pietri Tonelli.
- 53 As Amoroso points out "two factors underlay Pareto's economic statics: supply and demand. No substantial distinctions exist in production". Amoroso asks; what about the former division of economics into production, exchange, consumption and distribution? He answers this question, saying that according to Pareto, there is no division of things which corresponds to a difference in language ... all problems of economics are contained in the conditions for general equilibrium, limited by the forces and connections of the initial state! Luigi Amoroso, "La Meccanica Economica" in *Giornali degli Economisti*, Roma, 1924. p.46-47.
- 54 J.R. Hicks, "Gleichgewicht und Konjunktur" in *Zeitschrift für Nationalökonomie* Bd.IV (1933) p.442.
- 55 *ibid.* p.444.
- 56 "The circulation of the commodity is naturally only concerned with already existing values."
- 57 Hans Mayer "Der Erkenntniswert der funktionellen Preistheorien" op.cit. p.239. Of course, Mayer is not consistent enough. As a marginalist he regards consumer demand as the "locomotive force of the entire system" (op. cit. p.239). Demand, however, as the most recent work of the Keynesian school admits, is not a determining force, but is much more only a product, a result which depends on the volume of investment; and, in turn, investments are conditioned by the profitability which can be obtained in the process of production.
- 58 "Utility is, and will remain, only a comparable but not a measurable magnitude ... Attempts to treat utility like an extensive magnitude, in our opinion ... are bound to fail ... One cannot subject utility to the ordinary arithmetic and algebraic operations" (Cf. Irving Fisher, *Mathematical Investigations in the Theory of Value and Prices*, New Haven, 1892. p.88).
- 59 "It is a curious process of a self-decomposition of a theory — a supreme example of Hegelian dialectics — which not so long ago had been hailed as the essential steps in putting economics on a scientific basis" (H. Bernadelli, "The End of the Marginal Utility Theory?" in *Economica*, May 1938).
- 60 Schumpeter states: "Pareto discarded the Walrasian theory of value and

- based his own on the indifference-curve apparatus invented by Edgeworth ...". (*History of Economic Analysis* p.860).
- 61 Can someone who possesses 100 apples and 100 nuts ask, for example: How many nuts would compensate them for giving up 10 or 20 apples? Would, for example, a combination of 80 apples and 140 nuts come about?
- 62 Hans Mayer, "Der Erkenntniswert der funktionellen Preistheorien" op. cit. p.214.
- 63 op. cit. p.211-2, p.212. Cf. p.216. Cf. too Umberto Ricci, "Pareto e l'economia pura" in *Giornali degli Economisti* 1924 p.43. Cf. in addition, Henry Schultz, "The Italian School of Mathematical Economics" in *Journal of Political Economy*, Vol.39, (1931) p.77ff. and H. Hayer, op. cit. p.207-8, who stresses that the indifference combination only takes the form of a curve with two goods; a combination of three goods produces a three-dimensional diagram; under real conditions, i.e. with thousands of goods one would obtain an "unimaginable" creation, of thousands of dimensions (!) "a kind of hyperspace", which would be purely imaginary and have no relation to reality.
- 64 In addition, the method of the general interdependence of all economic variables, expounded by the Lausanne School, and so admired in its time, is today held responsible for the fact that the School never went beyond worthless generalities. It led to "a theoretical waste of effort" on the part of the Lausanne School (O. Lange, "Die allgemeine Interdependenz der Wirtschaftgrößen und die Isoliermethode," in *Zeitschrift für Nationalökonomie* Bd.IV (1933), p.56). Hicks points to the "apparent sterility of the Walrasian system", owing to its great distance from reality, (Hicks, *Value and Capital*, op. cit. p.60). As Husserl correctly says, the danger of such failures is inherent to the essence of mathematics itself. "The same researchers who operate the marvellous methods of mathematics with such incomparable mastery, and in doing so enrich them, often reveal themselves to be utterly incapable of giving sufficient consideration to the limits of its justifiable application" (Husserl, *Logische Untersuchungen*, 1913, p.10). The result in the field of economic theory: the dazzling application of mathematical techniques, and the poverty of its results.
- 65 Knut Wicksell, *Vorlesungen über Nationalökonomie auf Grundlage des Marginalprinzips* Jena, 1920 Vol.II, p.253-4.
- 66 *ibid.* p.241-2.
- 67 Fr. von Hayek, *Geldtheorie und Konjunkturtheorie*, Vienna, 1929. Wicksell's neo-Malthusianism also originates in an undynamic conception of the productive forces, according to which a country can only feed a certain optimum population: exceeding this optimum will necessarily lead to the impoverishment of the country — a view which represents an unambiguous relapse to the level of observation of the first half of the eighteenth century (Cf. J.P. Süssmilch, *Die Göttliche Ordnung in den Veränderungen des menschlichen Geschlechts*, Berlin 1761, Bd.1, p.142).
- 68 Cf. Irving Fisher, *Stabilising the Dollar*, New York, 1920.
- 69 R.G. Hawtrey, *Currency and Credit*, London, 1950.
- 70 Cf. G. von Haberler, *Prosperity and Depression*, p.16 and R.G. Hawtrey, *Trade and Credit*, London, 1928, p.98.

- 71 Cf. Haberler, op. cit. p.72.
- 72 *ibid.* p.28. Quite correctly, Haberler says of the non-monetary, overinvestment theories, whose representatives he names as A. Spiethoff and G. Cassel: "In the writings of these two authors, we find the culmination of a very important line of thought which can be traced back to Marx". On the now general usual distinction between the production of means of production and the production of means of consumption, see for example, in Marx: "The Two Departments of Social Production" (*Capital*, II, p.399): on the specific role of durable (fixed) capital "Replacement of the Fixed Capital" (*Capital*, II, p.453); on the influence of the length of the period of construction on the course of the cycle, see *Capital* II p.462. This distinction between the material elements was first introduced into the recent literature by Tugan-Baranovsky's book on crises in England (1901), and subsequently by Spiethoff and others, all of whom were influenced by Marx as can be seen from Tugan's schemes of reproduction which were copied from Marx. However, Tugan was celebrated by Sombart as the "father of modern theories of crises" and Tugan's book was praised by Spiethoff as the "first scientific monograph on crises" (Cf. W. Sombart, "Schriften des Vereins für Sozialpolitik" Bd.113, p.130 and A. Spiethoff, "Die Krisentheorien von Tugan-Baranovsky und L. Pohle", in *Schmollers Jahrbuch* Bd. 27 (1903) p.70.
- 73 J.M. Clark, "Business Acceleration and the Law of Demand" in *Journal of Political Economy*, Vol.25 (1917).
- 74 R.F. Harrod, "Relations between Capital Goods and Finished Products in the Business Cycle" in *Economic Essays in Honour of W.C. Mitchell*, New York, 1935).
- 75 L.P. Ayres, *Turning Points in Business Cycles*, New York, 1939.
- 76 Thus P.T. Homan writes in an essay entitled "The Present Impasse": "It is probably no exaggeration to say that recent investigations into the causes of cycles have done as much to destroy adherence to older types of theory as any other single cause. And it has led to the casting of their problems by many economists into terms of a changing process, rather than into terms of a static situation" (*Contemporary Economic Thought* op.cit. p.453).
- 77 H. Mayer, "Der Erkenntniswert der funktionellen Preistheorien" op. cit. p.148.
- 78 Cf. H. Schams, "Komparative Statik" op. cit. p.30.
- 79 P.W. Rosenstein-Rodan, "Das Zeitmoment in der mathematischen Theorie des wirtschaftlichen Gleichgewichtes" in *Zeitschrift für Nationalökonomie*, Bd.I (1929) p.131, 134.
- 80 *ibid.* p.129.
- 81 *ibid.* p.135.
- 82 Consequently the concept of "moving equilibrium" is a contradiction, as the real movements of the elements of the economy are in constant disequilibrium. Nevertheless H.L. Moore tried, in his book *Synthetic Economics*, Chap.V. "Moving Equilibria", to prove the parity of movement of exchange, production, distribution and accumulation, "as a moving general equilibrium", using empirical material from American potato production over a long period. However, he did not succeed. As Umberto Ricci showed in his critique, Moore did not describe a moving equilibrium, but in fact a moving

- disequilibrium. Cf. H.L. Moore, Umberto Ricci "Die synthetische Ökonomie" in *Zeitschrift für Nationalökonomie* Vol.I (1929) p.654.
- 83 E. Schams, op. cit. p.42.
- 84 *ibid.* p.55. Or, as Streller formulated this idea: The formulas for equilibrium would only have been possible at a higher abstraction from reality: however, it turns out that "an introduction of the time factor "t" in the equation clearly makes them immediately incapable of a solution" (R. Streller, *Die Dynamik der theoretischen Nationalökonomie* 1928, p.12).
- 85 Thus, Carver wrote recently: "In fact every dynamic movement is either a disturbance of a static condition, or a series of movements by which the static condition is reasserting itself, or rather by which a new static condition is being established after the disturbance" (Thomas Nixon Carver, "The Static State" in *Economic Essays in Honour of John B. Clark* op. cit. p.29).
- 86 Ricardo stressed that despite changing conditions in the economy, the mechanism of self-regulation will distribute capital exactly according to the needs of the respective branches of industry, "without often producing either the effects of a glut from a too abundant supply, or an enormously high price from the supply being unequal to the demand" (Ricardo, *Principles* op. cit. Chap.IV). Conrad likewise assures us that it is only the striving for equilibrium which prevents an economy lacking central direction from slipping into chaos. Hayek's language is very characteristic: he sees merely the "adjustments" of the economy, but regards the intervals of disruptions and catastrophes between these "adjustments" as unproblematic (F.A. Hayek, *Preise und Produktion*, Vienna, 1931. p.23).
- 87 This is only a vague indication of the concept of "dynamics": within the static line of thought it is only statics which have to be defined: dynamics is the other, the "counterpart" which does not have to be defined and which is somehow supposed to "complement" statics (R. Streller).
- 88 Alexander Bilimovic, "Zins und Unternehmervergewissen im Gleichungssystem der stationären Wirtschaft" in *Zeitschrift für Nationalökonomie* Bd. VII (1937) p.218.
- 89 "Only static theory can be regarded as being known: dynamic theory is almost totally uninvestigated and formulated; up until now only the necessity for such a theory has probably been shown" (R. Streller op. cit. p.26). John M. Clark assures us that "We possess a substantially complete static economics, while dynamics is in its infancy ... and very possibly is destined always to remain in that stage" ("The Relation between Statics and Dynamics" op. cit. p.46, 48). And similarly Hicks states: "a dynamic theory — the theory which many writers had demanded, but which none, at that time, had produced" (*Value and Capital*, op. cit. p.4.). Cf. Harrod, (in *Zeitschrift für Nationalökonomie* Bd.VIII (1937) p.498) and many others.
- 90 Cf. Marx, *Capital*, II, p.157-8.
- 91 *ibid.* p.108.
- 92 *ibid.* p.124.
- 93 *ibid.* p.108-8.
- 94 *ibid.* p.50, Cf. p.106.
- 95 *ibid.* p.106.
- 96 *ibid.* p.107.

- 97 "Further: since the circulation process of capital is not completed in one day but extends over a fairly long period until the capital returns to its original form, since this period coincides with the period within which market-prices equalise with cost-prices, and great upheavals and changes take place in the market in the course of this period, since great changes take place in the productivity of labour and therefore also in the *real value* of commodities, it is quite clear that between the starting point, the prerequisite capital, and the time of its return at the end of one of these periods, great catastrophes must occur and elements of crisis must have gathered and developed, and these cannot in any way be dismissed by the pitiful proposition that products exchange for products' (*Theories of Surplus Value*, Part II p.495).
- 98 "In order that the circuit may be completed normally ... C-M-C (must take place) not merely (as) replacement of one commodity by another, but ... with value relations remaining the same. We assume that this takes place here ... that the commodities do not undergo any change of value during the circular movement. Otherwise this process cannot run normally." (*Capital* II p.74-5).
- 99 *ibid.* p.158-9.
- 100 *ibid.* p.186.
- 101 *ibid.* p.243.
- 102 *ibid.* p.252, 255.
- 103 *ibid.* p.270-4.
- 104 *ibid.* p.266.
- 105 *ibid.* p.277, 281.
- 106 *ibid.* p.112.
- 107 *ibid.* p.282-3.
- 108 Curiously, a misjudgement of the importance of Marx's analysis for the understanding of the dynamic course of the capitalist economy can be found even in Engels, who advocated the view that Marx had "attached unwarranted importance to a circumstance ... of little significance", namely what Marx called the "release" of money-capital and "what are the uncertain results of his painstaking calculations" (See Engels's note on p.288 of *Capital*, Vol.II).
- 109 *ibid.* p.282.
- 110 *ibid.* p.171.
- 111 *ibid.* p.462.
- 112 *ibid.* p.189.
- 113 In the scheme of simple reproduction "total value 6,000, exclusive of the fixed capital persisting in its natural form, according to our assumption" (*Capital* II p.401).
- 114 *ibid.* p.507.
- 115 *ibid.* p.472.
- 116 "If things are to proceed normally, accumulation in II must take place more rapidly than in I" (*ibid.* p.516).
- 117 As can be seen Marx's accelerator principle is the direct opposite of that normally expounded in the literature of the dominant theory.
- 118 "By its essence, statics only studies one single market" (R. Streller, *op. cit.* p.39).
- 119 "Equilibrium must be considered as an equilibrium of prices." "There is always a solution of such a system admitting full employment of every factor

- of production", given only that the condition "that prices must be high enough to equalise supply and demand" is kept to (G. Cassel, "Keynes" 'General Theory' in *International Labour Review*, October 1937, p.438, 444).
- 120 *Capital*, II p.497.
- 121 *ibid.* p.434.
- 122 *ibid.* p.397.
- 123 In *Capital* Volume III Marx consequently speaks of the "social equilibrium of production". Since the immediate consumption of all factors of production is assumed, the existence of reserves lying unused in warehouses is disregarded.
- 124 *Capital* II p.398.
- 125 *Contribution to the Critique of Political Economy*, p.28.
- 126 *Theories of Surplus Value*, II, p.507-8.
- 127 *Capital* I p.143, 159, 164-5: II p.398: III p.46.
- 128 One can only abstract from use-value when the matter at hand is that of the process of valorisation, the formation of surplus-value: "In considering surplus-value as such, the original form of the product, hence of the surplus-product, is of no consequence. It becomes important when considering the actual process of reproduction ... Here is another example of how use-value as such acquires economic significance' (*Theories of Surplus Value*, III p.251-2).
- 129 *ibid.* "All these things serve in the real labour process because of the relationship which exists between them as use-values, not as exchange-values, and still less as capital."
- 130 *Capital* I p.168, 203. Marx therefore speaks of the "interdependent branches of the collective production of a whole society", and of the "bond" which holds it together. Not only are the branches of cattle-breeding, tanning and shoemaking quantitatively dependent on one another, but also those branches which supply the means of production (*Capital* I p.472, 474). What results from this, and what is important for understanding the dynamics of capitalism, is that revolutions in the mode of production in one individual sphere, e.g. machine-spinning, will necessitate similar revolutions in other spheres, such as weaving and dyeing, or else incongruities could arise in the technical proportions between these branches of industry (*ibid.* p.505).
- 131 *ibid.* p.202.
- 132 *Capital* II p.399.
- 133 *ibid.*
- 134 *Capital* II p.174.
- 135 Marx, *Aus den Exzerptheften* Op. cit. Section I, Vol.3, pp.530-1.
- 136 "In reality, supply and demand never coincide, or, if they do, it is by mere accident, hence scientifically = 0, and to be regarded as not having occurred." (*Capital* III p.189).
- 137 *ibid.* p.208, 225.
- 138 Cf. *Poverty of Philosophy*, p.68. On the absence of expansionary phases, cyclical booms with subsequent collapses in early capitalism, see W. Sombart; *Der Moderne Kapitalismus*, Leipzig, 1921, Bd.II p.214ff.
- 139 *Poverty of Philosophy*, p.68. "What Ricardo cannot answer, and neither Mr Say for that matter, is where competition, and the resultant bankruptcies, trade crises etc. come from, if every capital finds its proper employ?" "If

capitals were not so numerous in relation to the uses of capital, competition would be inexplicable." (Marx, *Aus den Exzerptheften zu Ricardo* op. cit. Section I, Vol.III, p.510-1). The only one of the recent writers to have seen this problem is Willard L. Thorp, who writes: "Under competition it is certain that some degree of overcapacity will exist" (W.L. Thorp, "The Problem of Overcapacity" in *Economic Essays in Honour of W.C. Mitchell*, 1935, p.491).

140 *Capital* II p.108.

141 Cf. *Capital* III p.186-189, 256-7.

142 Cf. *Capital* II p.108.

143 Cf. P.W. Rosenstein-Rodan, op. cit. p.131.

144 Umberto Ricci, op. cit.

145 As a condition of the future higher form of society, Marx did not only consider the objective factor, the economy, but also the subjective factor, humanity itself. World history, "is nothing but the creation of humankind through human labour, nothing but the emergence of a nature for humanity" (*Economic and Philosophical Manuscripts*, p.145). The "conquering" of the world of objects, is at the same time, the first emergence of this world for humanity. In Marx, its mastery, its "possession" does not only occur through theoretical observation, but rather through labour, through human praxis; this view serves to distinguish Marx from Feuerbach, for example (Cf. Marcuse, "Neue Quellen zur Grundlegung des historischen Materialismus" in *Die Gesellschaft*, Berlin, 1932 No.8 p.152). However, the labour, whose result is the subjection of nature and the becoming of humanity, is not "value-creating" labour, but "real", i.e. "concrete" — labour which creates articles of use; in short, the development of human productive power. But since concrete labour is always bound together with value-creating labour in the present economic order, the degree of the progressing maturity of concrete labour can only be expressed in its value, in the fall of the rate of profit, which is the capitalist expression of the wealth of society, the degree of the productive power of labour, and hence also a symptom of the approaching annulment of the rule of capital itself. "The decrease in the interest rate is therefore a symptom of the annulment of capital inasmuch as it is a symptom of the rule of capital in the process of perfecting itself — of the estrangement in this process of becoming fully developed and therefore of hastening to its annulment" (*Economic and Philosophical Manuscripts*, p.158). Having shown elsewhere (*Das Akkumulationsgesetz*) the consequences which arise for the problem of equilibrium with the value-observation of the process of accumulation, I confine myself here to emphasising those moments which hinder the attainment of a state of equilibrium from the material side of the technical labour process, and increase the incongruence between the material and value-proportions.

146 *Capital* I p.773-4.

147 *Poverty of Philosophy* p.41. The significance of this observation first becomes clear if we compare it with Böhm-Bawerk's view, according to which the scale of production can be determined arbitrarily, and is not technically given. In Böhm's view "any desired large or small amount of capital goods is sufficient to buy and pay the total supply of wage-labour in the economy. One simply needs to extend or compress the period of production accordingly." (*Kapital*

- und Kapitalzins). One is simply left wondering why unemployment continues to exist, when it appears to be so easy to abolish.
- 148 *Capital* I p.774.
- 149 "The specific development of the social productivity of labour in each particular sphere of production varies in degree ..." (*Capital* III p.163).
- 150 "If all ... capitals have accumulated at the same rate it does not follow at all that their production has increased at the same rate ... The same value is produced in both cases, but the quantity of commodities in which it is represented is very different. It is quite incomprehensible, therefore, why industry A, because the value of its output has increased by 1% while the mass of its products has grown by 20%, must find a market in B where the value has likewise increased by 1%, but the quantity of its output only by 5%. Here, the author has failed to take into consideration the difference between use-value and exchange-value" (*Theories of Surplus Value* III, p.118-119).
- 151 Cf. *Capital* II p.80.
- 152 *Capital* I p.465-6.
- 153 *Capital* II p.80.
- 154 *Capital* II p.492-3.
- 155 *Theories of Surplus Value* III p.119. The fact of the inelastic demand — along with the role of money — constitutes the main argument of Marx's critique of Mill's and Say's theory of the identity of supply and demand, which denies the possibility of generalised crisis.
- 156 "... a mode of production whose laws can only assert themselves as blindly operating averages between constant irregularities" (*Capital* I p.169).

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