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13 The International Debate on Long Waves of Capitalist Development: An Intermediary Balance Sheet

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The Brussels colloquium of January 1989 has produced a number of papers and discussion contributions of a high standard which faithfully reflect the present state of the international scientific debate about long waves of capitalist development. In that sense, I consider that it was a real scientific success, but also because there was lively pluralistic controversy. I leave purposely aside all questions of political implications or perspectives to be drawn from the debates, which constitute a different problem, although, of course, not unconnected with the purely theoretical one. But our duty as scientists is to judge historically verifiable phenomena by strictly scientific criteria, regardless of their political implications.

The international debate on the 'long waves' centres essentially on seven issues:

1. A temporal/spatial framework problem: can long waves be statistically verified and in what time-frame, regarding what geographically significant areas, and with what key indices?
2. What is the basic dynamic of capitalist growth? Is it inherent in the capitalist system itself, or does it in the last analysis depend upon the ups and downs of innovative individuals (the Marxists versus the Schumpeterians controversy)? Closely related to that question is the debate about the prime movers of long waves. Are oscillations in the average rate of profit the basic causes of variations in the rate of

growth (of capital accumulation), or are they rather the result of these variations?
3. What is the precise correlation between the ups and downs of scientific technological innovation, and the long-term movements of capitalist growth?
4. What is the extent of regularity, verifiable in long-term capitalist development? (The 'long cycles' versus 'long waves', or Kondratieff versus Trotsky controversy.)
5. The controversy about the 'exogenous' versus the 'endogenous' determination of long waves of capitalist development (the Mandel versus the 'regulation school' controversy).
6. The correlated controversy about the monocausal or pluricausal nature of capital's social control over wage labour.
7. The controversy about forces determining basic changes in general conditions of capital accumulation, and the correlated questions about the ups and downs of hegemonic states in the world market.

ARE LONG WAVES STATISTICALLY VERIFIABLE?

Are long waves statistically verifiable and verified? There now exists a great deal of material on that issue especially related to the curves of world trade and world output. I believe that the empirical evidence overwhelmingly – although obviously not 100 per cent – points in the direction of a confirmation of the existence of long waves.

But an important methodological question is closely related to that of empirical verification: long waves of exactly what? I stick to the definition which I presented in the early 1960s: long waves of *capitalist development*, which means long waves of output, employment, income, investment, capital accumulation, and long waves of rates of profit. From this it follows that one cannot integrate into a 'long-wave' theory of capitalist development time series concerning essentially food prices extending over 500 years. I do not, a priori, deny that some long waves in agricultural output and international trade, both of staple goods and luxury goods, could be discerned. However, this is a distinct problem, that we could call the Wallerstein–Gunter Frank hypothesis.

It is important to stress that it is a different problem from the one of long waves discernible in the capitalist economy. A capitalist economy is not simply an economy based on exchange, trade and money capital accumulation. It is an economy based upon *production by wage labour*, which capital hires in order to realise profits, which permit more capital to accumulate, leading to more investment in production, larger output, larger profits, and so on. That growth dynamic is quite different from anything which occurs in pre-capitalist societies, even when money capital and international trade are already widely developed. And it is the *variations in these growth rates* which justify the concept of 'long waves of capitalist development'. Of course, one could object that this is a subjective *parti pris* in defining the object of study. I would not deny this: if one formulates a different problem one can, of course, come up with a different answer. But this is not a valuable objection to a theory of long waves of capitalist development, as many authors formulate it. The only valuable objection would be: this theory is irrelevant for understanding what has been going on in the real world for the last 200 years. I have not heard a single argument convincingly advanced along these lines. What has been said is that other questions are relevant too. This might very well be the case. But they only lead to the conclusion: so what?

One should not forget that the problem of the long waves of capitalist development has historically arisen out of the business cycle *theory*, which, in turn, is a product of business cycle *reality*. It has been an analytical tool to understand and explain successive ups and downs of investment, output, employment and income. Nobody can seriously argue that these problems are irrelevant to the understanding of what has been going on in the economy and society of many countries throughout the world for the last 160–200 years, first in Britain, Western Europe and the USA, and then in the rest of the world. The fact that other problems can also be posed does not suppress the necessity of examining these precise kinds of problems.

THE RELEVANT GEOGRAPHICAL FRAMEWORK CONTROVERSY

An additional difficulty has been raised: where should we look for empirical verification or falsification of the long-wave theory? In the national economies? In those of the leading capitalist nations? In the world economy taken as a whole? Again we have to notice the implicit theoretical assumptions underlying the statistical material. If the time series of a great number of capitalist countries, not to say of all of them, are juxtaposed to look for evidence of long waves, a basic synchronisation, if not identity, of all these economies is assumed. This seems a serious methodological error.

Non-industrial countries, or countries in the 'take-off' phase of industrial production, will not have a growth pattern identical with that of already-industrialised countries. Dependent countries will not have the same growth pattern as independent metropolitan-centre countries. Certain countries such as Switzerland occupy a clearly counter-cyclical position: when things go badly in the world economy, capital flows into that refuge country. Neutral Sweden, again, occupies a special place, at least in twentieth-century economic development.

So one could concentrate either on some key capitalist economies or on world output and world trade taken in their totality, and consider any national deviation from that general trend as a specific problem to be specifically explained and not as 'proof' that the long waves are not empirically verifiable to a satisfying degree.

THE MOVING FORCES OF CAPITALIST GROWTH, OR MARXISTS VERSUS SCHUMPETERIANS

Closely related to the question of what are we really talking about is the question: what is the basic logic of capitalist expansion? I agree fully with the 'rate of profit/rate of capital accumulation' mechanism as a key answer to that problem. As a matter of fact, I have already advanced that position in 1964. Inasmuch as material is presented to clarify or throw doubt on the studies, I believe it to be stimulating further discussion, but not of such a magnitude that it undermines the credibility of the basic working hypothesis itself.

A number of different debates are subsumed in the controversy about the basic reason for growth under capitalism. First and foremost is the question of whether there is a basic growth dynamic inherent in the capitalist mode of production, or whether this depends in the final analysis on the autonomous role of innovative personalities, unleashing processes of *radical* and cumulative technological change.

I fully agree with all those participants in the discussion who stress the growth dynamic inherent in the capitalist mode of production, who consider this growth dynamic (or, what is strictly the same in Marxist terms, the dynamic of capital accumulation) '*systemimmanent*', to use the German term. This growth dynamic is unleashed by two basic characteristics of capitalism:

1. Competition, that is, private property in the economic sense of the word (fragmentation of decision-taking by firms independent of each other) – the private character of labour embodied in commodities, which is only *post festum* recognised as social labour to the degree that their exchange value is realised on the market.
2. The class struggle between capital and labour, that is, the separation of the direct producers from their means of production and livelihood, and the economic compulsion thus imposed upon them to sell their labour power to the owners of the means of production.

These two basic characteristics of capitalism oblige the capitalists (the capitalist firms) to accumulate more and more capital in order to lower production costs through the purchase of more and more sophisticated equipment and cheaper and cheaper raw materials. Otherwise they will be beaten by competitors.

These characteristics also impose upon the capitalists the obligation to substitute machinery (dead labour) for living labour, to avoid scarcities of labour, which drive wages up. Both trends towards technical progress immanent in the system are trends towards *labour-saving technical progress*. In certain phases of long waves, they will be compensated, sometimes even overcompensated, by the trend towards capital-saving (more correctly: constant capital saving) technological progress. But the long-term end result of the interaction of both is definitely one of basically labour-saving technical progress.

This trend is, of course, obscured or even buried in statistics about total wage labour, or 'total wage bill' statistics, which do not make the distinction between productive and unproductive labour. The law of motion indicated here concerns productive labour under capitalism, that is, labour producing surplus value. But this is again not a dogmatic *parti pris*, but a distinction quite relevant for understanding what has been going on in economic history since the Industrial Revolution. How could one otherwise accept or even explain the reality of the trend towards growing mechanisation, semi-automation, automation and robotism, which has been visible since the Industrial Revolution?

Second is the debate about the prime mover of this growth dynamic inherent in the system. In my opinion, it is definitely the pressure towards growing real capital accumulation, that is, the combination of surplus-value production, surplus-value realisation and surplus-value division (between productively and unproductively spent surplus-value). The distinction between *ex ante* and *ex post* profit calculations, between what levels of expected profits either stimulate current investment decisions or put a brake on them, and what levels of realised profits stimulate or restrict capital accumulation and thereby investment decisions *in the next cycle of reproduction*, allows us to separate two problems. One is that of the relation of microeconomic choices and macroeconomic outcomes which is *never* guaranteed under a system of private property and competition; and the other that of the time-lag between private decision-taking moments and periods in which the social outcome of these decisions becomes apparent and in turn determines new private decisions.

The average rate of profit is definitely a *social* result of private decisions, and a social result which becomes apparent only after a given time-lag. The oscillations of the rate of profit, which in the last analysis determine the long term differences in the rate of growth, again lead to an important time-lag, for they become obvious to capitalist firms in the form of higher or lower profit *expectations* only after some real experiences and verifications. So the time sequence seems to me to be the following one: expected rates of profits induce higher or lower investment decisions, which induce higher or lower rates of growth which, combined with variations in the rates of surplus-value, variations in the organic composition of capital, variations in the degree of expansion or contraction of the market, lead to variations in the *realized* rates of profit. These in turn determine the volume of real capital accumulation and new profit expectations, which themselves in turn co-determine investment decisions for the next cycle.

An important new contribution to the international debate has been the one by Anwar Shaikh around the relevance of the fluctuations of productive capacity utilisation as a co-determinant of profit-rate fluctuations and investment decisions. We should separate the question of the empirical data, which remain open to correction through new methods of investigation or new collected data, from the question of the inner coherence of the argument. From the latter point of view, Anwar Shaikh's contribution seems unassailable.

If one looks at the reasons for lower average rates of growth in long depressive waves, the existence of long-term overcapacity in important branches of output appears prima facie as one of the key reasons for a significantly lower rate of *productive* capital accumulation (of expanded reproduction). Especially in the present long depression, it leads simultaneously to an important momentary 'rupture' between money capital accumulation and productive capital investment, that is, to great excesses of speculation. But as only productive capital produces surplus-value, such a break will always be temporary. So much for the prediction of long-term 'de-industrialisation' in the broader sense of the word (of course, many service industries are just that: service *industries*, that is, fields of productive capital investment), which will go the way of all flesh.

Third is the relation between the abstract, *general* growth dynamic of capitalism and the concrete, specific forms it takes. Again because of the very nature of capitalist production as a generalised market economy (generalised commodity production), capitalist growth is *always* uneven, that is disproportionate, growth. Some countries, regions, branches of industry or firms grow quicker than others. This not only stems from the fragmented character of decision-making, first of all in the field of past and current investment. It also results from the differences in the *initial* capital profile of each country, region, branch of industry or firm. It likewise reflects the different organic composition of these 'many capitals' – the only form in which capital *can* exist with a growth dynamic, as Marx explicitly stated. And it likewise reflects the important role of specific-use values produced by each country, region, branch of industry or firm. For demand, purchasing power on the market is always demand for a specific use value and not abstract 'aggregate demand', which is only a final sum, an epiphenomenon. Here the question of product innovation as a problem separate from that of technological innovation, fully comes into its own.

Now we are at the very heart of the theory of the 'long waves of capitalist development'. The whole problem only arises because unevenness of growth is a fact of life. The way the problem of the growth dynamic of capitalism is related to the problem of long waves can be restated in the following terms: is there an immanent logic under capitalism which implies that the combination of all the factors which determine capitalist growth leads to *disproportions which have long-term cumulative results*, and leads to periods where they result in an average rate of capital accumulation which is substantially lower (or even non-existent), compared to that of other long periods? One could, of course, theoretically deny that this is the case, and only recognise random oscillations. But I believe that the empirical evidence nicely dovetails with the theoretical analysis. Given the relatively autonomous and disproportionate, uneven, dynamics of the organic composition of capital, of the rate of surplus-value and of the world market (to name just the three most important ones), such varying long-term cumulative effects seem the most likely outcome of long-term uneven development.

TECHNOLOGICAL INNOVATIONS AND LONG WAVES OF CAPITALIST DEVELOPMENT

The assumption that uneven, differentiated, discontinuous growth is immanent in the capitalist mode of production, by no means downplays or marginalises the role of technological innovation, and especially the role of technological revolution, in the long waves of capitalist development. Quite the contrary. I have already stressed that capitalist growth is always accompanied by technical progress. What Marxists, following Marx himself, would assume is that such innovations inevitably *result* from the very operation of the system, that they are not dependent upon the biological accident of a sudden appearance of 'innovative personalities', that they constantly stimulate such appearance through material rewards, social (ideological) pressure and specific institutions such as transformation of the system of higher education; systematic organisation of scientific research; development of the so-called applied sciences; increasing autonomisation and profitability of research activities, and so on. It is in that sense, and in that sense only, that Marxists would criticise Schumpeter.

The question of the discontinuous, diachronic character of that growth implies that cumulative results of technical change are also discontinuous and diachronic. This means that at least three aspects of technical change have to be distinguished: invention (scientific discovery); initial so-called experimental technological innovation; and diffusion.

The first aspect has up to now been little investigated in the framework of the long-waves theory. We have to rely for the time being mainly on the conclusions drawn from the history of science (or scientific discoveries) itself. The evidence seems to point in the direction of an increasingly continuous and cumulative character of scientific discoveries, with, however, particular specific leaps forward in particular fields and in the function of specific social pressures.[1] I will leave this field of enquiry to current and future further research.

It is important to stress from the outset that there is no automatic correlation between scientific discoveries and technological innovation. Under capitalism, and in any form of market economy, scientific discoveries and technological innovations will always be at least partially mediated through material rewards (under capitalism: profit expectation and realisation) of independent firms. When these stimulants decline technological innovation will decline, regardless of whether new inventions are available or not. When the expected financial rewards start to rise, technological innovation will expand.

In order to relate this elementary causality to the mechanism of long waves, we have to answer further questions. Can it be empirically verified that technological innovations appear in bunches, either during long 'expansive waves' or during long 'depressive waves'? If the answer is yes, then *why*? If not, are they more-or-less equally distributed throughout time? And if their 'bunching' has been proven, what are its results regarding the growth dynamic; what are its effects upon the rhythm of capital accumulation?

The first question has led to the Mensch versus Freeman/Kleinknecht controversy. I have to make a self-criticism here: in my book entitled *Long Waves of Capitalist Development* (Cambridge University Press, 1980). I hastily and wrongly assumed that Mensch's data were correct. Today, the evidence points in the direction of Freeman and Kleinknecht being right. I stand chastised.

But it does not follow from this that the rhythm of technological innovation is irrelevant to the long-waves problematic. In order to reintegrate the Freeman/Kleinknecht data into an understanding of the logic and the operation of the succession of long depressions and long expansions, two distinctions which I made in the above-mentioned book remain fully operative.

First, it seems logical to note that a long depression stimulates technological research, that technological innovations are a source of surplus profits (technological rents), and that when the rate of profit is depressed, the search for such rents would become frantic. But it is likewise logical to assume that under conditions of relative stagnation of the market, and of high levels of excess capacity, the overall macroeconomic weight of innovative activity will not tend to be very high. A larger part of capital investment will be in the nature of perfecting existing technology. Only a minor part will take the form of fundamental technological innovation of an incremental nature.

Towards the end of the 'long depressive wave' this begins to change. This is why several colleagues see in this very change the cause of the upturn (which then becomes essentially 'endogenous'). But I believe that such a view underestimates the decisive role of profit expectations and profit realisation in the operation of capitalism.

Only if and when the economic climate is *already* one of greater and greater profit expectations, and of actually realised increases in the average rate of profit, will innovative activity jump from being essentially experimental and incremental into becoming all-pervasive and generalised through mass production. Only then will we witness a real technological revolution, that is, a real change in the technology of all leading branches of output (including services). It is not the technological revolution which triggers off a new expansive long wave. It is the long-term increase in the rate of profit which triggers off a new expansion, which then becomes cumulative, that is, a long-term expansion through the technological revolution. What have been called 'new technological systems', 'pervasive technological changes' and 'combinations of incremental and radical innovations' represent just that technological revolution.

Again we see the actual time sequence as follows: a general initial increase in the average rate of profit triggers a general increase in capital accumulation, which stimulates the financing of generalised radical technological change, which generates an overall technological revolution, which by cost-cutting and initially increasing technological rents makes an increase of the average rate of profit (or at least its staying at an unusually high level over a long period, through several successive business cycles) possible.

In a parallel way, in the latter half of the 'expansive long wave', the very generalisation of the new technology erodes the technological rents, creates increasing market saturation for those products mainly embodying the new technological revolution, creates increasing excess capacity in the 'new' sectors of output, impedes reductions in the organic composition of capital and, through an interplay of all these factors, makes for a long-term tendential decline of the average rate of profit.

As for an empirical investigation of the quantitative aspects of technological revolutions in relation to the organic composition of capital, I would advise the following paths of study: the relative weight of new branches of output in overall production; the fluctuations in the life-cycle of equipment; and the fluctuation of raw materials and energy costs as part of total production costs of finished products.

LONG CYCLES OR LONG WAVES

Is the long-term movement of output, employment and income endowed with the same kind of regularity as the business cycle? Is it basically more irregular? In the first case, it would be correct to speak about long cycles of capitalist development; but in the second case, it would be more appropriate to call the long-term movement an addition of long *waves*. In the light of the history of economic ideas, this controversy could be called the Kondratieff versus Trotsky debate.

There are two approaches to this debate which we must distinguish. The first one is semantic, a question of definition, which has to be empirically verified or discounted. The second one is analytical/causal. The semantic problem turns on the definition of regularity. How regular should a movement be in order to be called 'regular'? The average duration of the business cycle over the last 200 years has been 7.5 years. But this average, as Marx noticed a century ago, is a statistical long-term average. The real duration of the business cycle has varied between 5 and 10 years.

If one supposes that the average duration of a long wave is 25 years, but that this average results from a real movement varying between 20 and 30 years, one does not encounter a basic difference between the regularity of the business cycle and the regularity of the Kondratieff cycle. But the cumulative character of the variations could make quite a difference. In the history of business cycles we do not encounter three or four successive cycles of 10 years' duration, followed by three or four successive cycles of 5 years. So, the 7.5-year average duration of the business cycle is more than a purely statistical average: it corresponds to the common duration of the real movement, the extremes of variation being exceptions and not the rule.

On the other hand, there is a cumulative effect of a succession of long-term movements of a duration other than 25 years. The latest expansive long wave in the USA is not a 'post-Second World War boom' as in Western Europe and Japan; it lasted from 1940 until the early 1970s, that is, for 33 years. Likewise, the 'the long depressive wave' which started around 1973, has already lasted almost 20 years, and I am convinced that it will last for a great number of years more. So even if one takes again a 30–35-year duration, this would make for two successive Kondratieff waves lasting together at least 63 years, if not 68–70 years or more, which is substantially above a 50-year double cycle.

If one adds to this the fact that the previous 'expansive long wave' lasted only 20 years (1893–1913) followed by a 'depressive long wave' of 25 years for the USA (for Europe and Japan, it is nearly impossible to come to a conclusion of how to integrate the years of the Second World War into the picture), one finds a cumulative difference of 50 per cent in duration of the long-term movement: 45 years as against 68–70 years, if not more.

The picture remains substantially the same if one considers the previous Kondratieff 'long expansive wave' of 25 years (1848–73) which was followed by a long depression of 20 years (1873–93): again 45 years as against 68 years or more. The irregularity seems rather higher than that of the business cycle. The first Kondratieff wave of industrial capitalism would confirm this conclusion: an expansive wave of 27 years (1798–1825) followed by a depressive long wave of 23 years (1825–48), that is, a duration of 50 years quite different from the above-mentioned 45- and 68–70-year periods. Likewise, the different duration of the 'expansive' and of the 'depressive' waves is also evident in every Kondratieff wave. Therefore, *irregularity seems to be stronger than regularity*, the concept of 'long waves' seems to correspond more to the historical evidence than the concept of 'long cycles'.

But more important than the semantic and empirical aspect of the question is the analytical, causal, explanatory one. The very nature of a cyclical movement lies in the automaticity of the reversal, of the turning point. Whatever happens in other realms of society, whatever occurs in international relations, in the class struggle, in the field of ideology or regarding specific forms of government, a crisis of overproduction/overaccumulation of capital, is *inevitably* succeeded by a revival of investment, output, employment and income. This results from the very nature of capitalist production dominated by fragmentation of decision-making between competing firms. These decisions lead to the phenomenon of overshooting, that is, too much production for a given 'effective demand' of final consumers, followed by too little production even for a reduced effective demand; too much capital for a given mass of surplus-value produced and profits realised, followed by much less capital productively invested for the given (even reduced) mass of surplus-value and realised profit. Hence an increase in the average rate of profit. Hence the take-off of a new cycle of expanded reproduction, that is, expanded investment, output, employment and income. The very forces which drive business into crisis drive it into expansion after a given interval, independently of all interferences.

It is my contention that a similar mechanism does not operate in the framework of the 'long waves of capitalist development'. Here, a basic asymmetry between the reversal from a 'long expansive wave' into a 'long depressive wave' on the one hand, and the reversal from a 'long depressive wave' into a 'long expansive wave' on the other, has to be noticed. The first is more or less automatic; the second is definitely not. The reasons for this asymmetry are again linked to the very nature of the capitalist mode of production. The cumulative effects of profit expectations determining investment decisions of individual capitalist firms, and the profit realisations by these very same firms, determine the average rate of profit, independent of anyone's plans, intentions or previsions. They create a long-term momentum in which a cumulative decline of the rate of profit becomes unavoidable throughout a certain number of successive business cycles. Whether it needs two, three or four business cycles is of secondary importance and can vary from one 'long expansive wave' to another. In other words, the economic forces which operate in favour of long-term expansion *have* to spend themselves progressively, more or less in the same way as the forces which create a capitalist 'boom' *have* to erode within the normal business cycle.

But the same is not true for the conditions transforming a 'long depressive wave' into a 'long expansive wave'. While we have to stress that the 'normal' business cycle continues to operate within every long-wave expansion, the 'long wave' has a dampening effect on each of them. Crises (recessions) which occur in a long expansion tend to be milder and shorter. Booms which occur in a long depression likewise tend to be milder and weaker.

So the real problem is how, under these conditions, there could come about a combination of circumstances which suddenly transform these mild and short booms into a long-lasting rapid expansion. The automatic mechanisms of the business cycle (unemployment driving the rate of surplus-value up; the cheapening of raw materials making for a decline in the organic composition of capital; technological innovations in the production of equipment having the same result) seem insufficient to produce such a turn-round, all other conditions remaining equal.

Historical evidence points strongly in the direction of *exogenous system shocks* being necessary to bring about a basic reversal of an historical trend. The basic historical trend of the capitalist mode of production is indeed one of decline and not one of impetuous upsurge in the average rate of profit. But three times in history we have witnessed such an impetuous upsurge: after 1848; after 1893; and around 1940 in the US (1948–49 in Western Europe and Japan). Each time, extra-economic system shocks seem to have played a key role. They led in each case to a sudden expansion of the world market and a sudden basic change in the general conditions of capital accumulation favouring such accumulation. The factors stimulating a long-term upsurge of the rate of profit were the liberal or bourgeois revolution of 1848 and the discovery of the California gold-fields around the same time; the radical increase in capital investment in the colonial world (imperialism) and the discovery of the South African Rand gold-fields after 1893; the cumulative long-term results of Fascism (counter-revolution) and war around 1940 and afterwards.

THE 'ENDOGENOUS' VERSUS 'EXOGENOUS' MOVEMENT CONTROVERSY

The hypothesis of a basic asymmetry between the upward and the downward turnround of the 'long wave', and the decisive role of system shocks in triggering off the upward turn, lead to the controversy about the 'endogenous' versus the 'exogenous' character of the passage from a long depression into a long expansion. Again, we have to distinguish the semantic aspect of the problem from the analytical one.

When we speak about 'system shocks' and about the 'exogenous' determination of the upward turning point, we mean system shocks *with regard to the basic economic mechanisms* of the capitalist mode of production. We do not consider that an extension of the world market as realised by the 1848 revolution, or by the discovery of the California gold-fields, is an automatic, unavoidable result of the long-term economic depression of 1825–48.

Of course, a long depression favours the search for new gold-fields. It likewise creates forces operating in the direction of revolution, but accompanied also by forces favouring counter-revolution. However, the end-result of these trends is in no way predetermined. To take one present example: for years, a frantic search for new gold-fields has been going on especially in Brazil and New Guinea. But can anyone predict that this will definitely lead to the discovery of new gold-fields of the amplitude and weight in the world economy comparable to those of the Californian gold-fields after 1848 and the Rand gold-fields after 1893?

Inasmuch as I can base myself upon empirically verifiable and refutable data, they overwhelmingly tend to confirm my hypothesis of system shocks exogenous to the economic laws of capitalism, properly speaking. I have not seen any empirical evidence proving the economic endogeneity of these 'system shocks'. And I continue to challenge all those colleagues who support the hypothesis of an 'endogenously produced long-term upward movement' to show solid empirical evidence in support of their contention, and not to limit themselves to purely 'logical' (I would prefer to say paralogical) reasoning.

Of course, if the framework of reference of the terms 'endogeneity' and 'exogeneity' is changed, then quite different conclusions become possible. If one takes the terms 'exogenous' and 'endogenous' as referring to *bourgeois society in its totality*, then it is obvious that revolutions, counter-revolutions, wars, gold-fields and so on, are not 'exogenous' to bourgeois society. In that case, the colleagues who defend the 'endogenous character' of the upward turning point are, of course, correct. But theirs is then a purely Pyrrhic victory. For they are only indulging in tautology, which has no analytical value whatsoever. Everything which occurs inside bourgeois society is by definition endogenous to that society. By making this rather trite point, my colleagues have not proved in any way that revolution, counter-revolution, wars and the discovery of giant new gold-fields (basic changes in the money/commodity relation) are the unavoidable result of a long-term economic depression. And that's what the 'exogenous' versus 'endogenous' controversy is all about.

THE LIMITS OF CAPITALISM'S LONG-TERM SELF-REGULATORY POTENTIAL

So the 'exogenous' versus 'endogenous' explanation of the upward turning point in the long-term movement of capitalist development throws us back to another controversy: what are the forces determining basic changes in the general conditions of capitalist accumulation? Are they purely economic, that is, do long-term depressions create not only necessary but also sufficient preconditions for all those social and political changes on which more favourable general conditions of capitalist accumulation depend? Or is there a relative autonomy of social and political forces which *could* (I do not say *do*) counteract, brake or even reverse the results of the economic forces operating during long-term depressions? In other words, is there an unavoidable long-term self-regulation of capitalism, independent of what social forces, different fractions of the capitalist class and of the working class, actually achieve in real life, independent of their concrete correlation of forces, and of the outcome of their real struggles?

To bring the controversy to its vital implication: is the class-struggle cycle mechanically determined by economic forces resulting essentially from levels of employment? Do long-term depressions make working classes' crushing defeats unavoidable? Was Adolf Hitler's victory in 1933 inevitable? Or should one rather say that there is indeed a *relative autonomy* of long-term class-struggle results, a relative *desynchronisation* of the class struggle and the ups and downs of investment, output, employment and income? Can the subjective factor in history – in this case the divisions of the bourgeoisie between its 'liberal' and its 'aggressively reactionary' wings; the concrete policies (strategies and tactics) of the reformist social-democracy and the Stalinist CP (Komintern) – make a decisive difference between victory and defeat of, for example, Fascism?

The question of the long-term results of the class struggle is basic to the question of the possibility of a long-term expansion of capitalism, of a long-term rise of the average rate of profit, through the mediation of the long-term fluctuation of wages, which are one of the determinants (not the only one, of course) of the rate of surplus value.[2] It is undeniable in the light of empirical evidence that long-term fluctuations of real wages are not a straight function of the ups and downs of the unemployment ratio, but a function of a whole series of variables, which I have attempted to analyse elsewhere.[3]

There is an interesting philosophical debate underlying this controversy. Two varieties of determinism are confronted here: mechanical–economic (economistic) rectilinear determinism on the one hand; dialectical, parametrical socioeconomic determinism on the other hand. I contend that the second version of determinism, which sees two or three possible outcomes for each specific historical crisis – not innumerable ones for sure, nor ones unrelated to the basic motive forces of a given mode of production, but definitely several, corresponds both to Marx's theory, and to Marx's analytical practice. But this is, of course, neither here nor there regarding the controversy we are dealing with. The question is, in what direction do the actual empirical data point?

Here I must state that the international debate has produced a wealth of new evidence, some of which has been presented to the Brussels colloquium, confirming my hypothesis of the relative autonomy of the long-term class struggle movement, and the long-term militarisation/war trends from the long waves of economic development, properly speaking. Both masses of evidence have implications for a realistic judgement of what is going on during the present long-term depression, and the likelihood that it will lead to a new 'Kondratieff expansion'.

THE CONDITIONS FOR EFFICIENT SOCIAL CONTROL OF CAPITALISM OVER LABOUR

If one assumes that capitalism's long-term self-regulation is more-or-less unavoidable, then it follows that the present long depression will indeed lead to a 'soft landing'. A new 'expansive long wave' will then occur in the foreseeable future, no matter whether it is after the next recession or the one after that.

If one assumes, however, that such an assured long-term regulation is uncertain, that there are no economic mechanisms which automatically produce a long-term expansion, then the likelihood or not of a 'soft landing' after the present depression remains at the very least an open question, not yet decided by history. *Then everything depends upon the outcome of the struggle between specific social and political forces in a series of key countries throughout the world.* And then one basic difference between the present long depression and the previous one is immediately noticeable, immediately leaps to the eye. No working-class or Third-World liberation movement in a key country of the world, with the exception of Indonesia, has suffered a decisive defeat comparable to those successively inflicted in Italy, China, Indo-China, Indonesia, Japan, Germany, Spain, Brazil and France in the 1920s and 1930s.

Indeed, in all key countries today the partial retreats and partial defeats suffered by the labour movement and the liberation movement after 1974–75 leave their fighting potential largely intact and make a new upsurge of class struggle not only possible but likely. This has already occurred in Brazil, South Africa, South Korea, France, Poland, Spain and Italy. It is starting to occur in the USSR and China as well and will probably spread to more and more important countries. Again, linked to the controversy about the limits of capitalist long-term self-regulation is an important theoretical problem. Given the very nature of the capitalist mode of production in which the *free* wage labourer (and not the slave) is the producer of wealth and of the social surplus product, purely economic mechanisms cannot in and of themselves produce 100 per cent automatic resignation, passivity and subordination of wage labour under capital. Specific forms of social control over labour, inside the factory as well as in society in its totality,[4] are an indispensable complement of purely economic mechanisms which, through the fluctuations of the reserve army of labour, assure a degree of submission but do not guarantee it permanently, or automatically, or fully.

History has confirmed Marx's analysis in that respect too. Wage labour can be organised or unorganised. It can organise militant unions or unions more or less subordinated to the employer's economic objectives. It can fight back or remain passive in the light of attacks on a given average level of real wages. It can be content with historically established living standards, or accept their substantial lowering, or it can fight to integrate the satisfaction of new needs into that socially recognised average price of the commodity 'labour power', that is, fight for substantial increases in real wages. It can accept changes imposed at its expense in the labour organisation at the point of production (for example, speed-ups; reductions of free time; declining recognition of acquired skills; night work for women; work during weekends, and so on). It can likewise fight back and impose forms of control and limitation on these changes by its own representatives.

All these different variations in the forms and efficiency of control of capital over wage labour have occurred throughout history in numerous countries. They all have in common that, while they are obviously influenced by economic changes and the basic dynamics of the capitalist mode of production, they depend in the last analysis on a dialectic between these economic mechanisms and what Marx called the *relationship of forces between the combatants*. This relationship of forces is in turn 'overdetermined' by the *cumulative results of long-term trends bearing upon the strength of the labour movement* and the militancy of the working class.

To illustrate these historical determinants of the degree of social control which capital can in real life impose upon labour: the degree of resistance of the working class to a radical deterioration of its real wages and labour conditions in countries such as France, Italy, Germany, Belgium, Denmark and even the UK, depends to a large degree not only (and not even in the first place) upon the extent of unemployment since 1974 or 1984, the fear of unemployment, the extent of new government anti-labour legislation, the pressure or the efficiency of new employer's production, and labour control techniques inside the factories and offices, all forces which obviously exercise a powerful pressure in the direction of greater control of capital over labour.

That degree of resistance also depends to a large, and I would say decisive, extent upon the strength of working-class militancy *accumulated throughout the previous historical period*, as a result of the economic forces operating *in the past*,[5] especially full employment and the effects of the 'welfare state', and the way in which the working class translated them into a militant potential through momentous struggles. The degree of social control capital can effectively impose upon labour therefore depends on the results of the *past* cycle of class struggles as much as, if not more than it does upon the effects of the *present* economic 'long wave' on labour's relative strength and/or weakness.

THE WEIGHT OF FLUCTUATIONS OF HEGEMONIC STATES IN THE DETERMINATION OF LONG WAVES OF CAPITALIST DEVELOPMENT

Finally, we have to integrate into the factors determining basic changes in the general conditions of capitalist accumulation, the relative importance of the ups and downs of single capitalist states' hegemony in the world market. In the past the following rule has been roughly formulated: long expansive waves are characterised by the consolidation of a single capitalist power's hegemony in the world market: 'free enterprise' Great Britain in the 1848–73 period; British imperialism in the 1893–1913 period (although to a smaller degree than Britain's hegemony in 1848–73); US imperialism's hegemony in the 1940(1948)–1968(1973) period.

In the same way, a long depression is generally accompanied by the absence of one single hegemonic power. The UK did not yet enjoy such a monopoly of a high level of average industrial productivity of labour in the 1825–48 period as it established afterwards. The 1873–93 long depression had not yet seen the consolidation of the British Empire, which occurred later. The 1913–39 period had not yet seen the emergence of the 'American century' which occurred as a result of the Second World War, although the tremendous industrial and financial superiority of the USA in the struggle for world domination was already clear in 1940. And the present long depression is obviously characterised by a rapid decline of US hegemony in the world market.

It is important to stress the structural links between the weight of these ups and downs of single countries' hegemony on the world market on the one hand, and the basic nature of the capitalist mode of production on the other. Because capitalism is basically private production and competition, a purely private monetary system is inoperative and contrary to the needs of the system taken as a whole. The very nature of money as a means to bridge the contradiction between private and socially-recognised labour in a market economy cannot be realised through private money. So capitalist paper money has to be state controlled, in order for its 'value' (more correctly, the amount of gold it represents) to be potentially recognised by all capitalists. This, in turn, means that the relative industrial power, competitive superiority and financial stability of each capitalist state determines the relative degree to which the paper currency it emits will play the role of a 'general equivalent' on the world market.

The implacable laws of competition lead to the foreseeable result that competitive superiority and financial stability are never acquired once and for all, or even for very long periods. It is an object of the law of uneven and combined development. Capitalist powers developing later than others can overtake the first ones in the field of average productivity of labour and industrial competitivity. Currencies which once were 'as good as gold' can suddenly become weakened as a result of lasting deficits of a given country's balance of payments.

The controversy which arises around this problem (which incidentally also illustrates that the question of the total volume of gold production, that is, the question of the discovery of new great goldfields, is in no way marginal but central to the general conditions of capital accumulation)[6] can be summarised in the following way.

Is there a long-term independent cycle of power hegemony (for example, overdetermined by military/political strength) which determines the long waves of economic development? Or is it rather the outcome of economic mechanisms and international competition which determines the ups and downs of single power hegemony? This is an interesting and paradoxical variation of the controversy around the 'exogenous' versus 'endogenous' determination of long waves.

We tend to be more cautious in respect of that controversy than in respect to the relative autonomy of the long-term class struggle cycles and real wages fluctuations. A certain degree of autonomy of states' hegemony from the long-term results of international competition and relative competitiveness in the world market is undeniable. British imperialism maintained a clear superiority in the realm of naval power long after its industrial superiority was eroded. It even reconquered temporarily a relative technical superiority in the field of air power in 1939–40, which played a decisive role in preventing Germany from winning the war against the United Kingdom in 1940.

The USA today maintain a strong military-political preponderance in the capitalist part of the world, disproportionate to the relative decline of its industrial and financial power. But such discrepancies are generally limited in time. Industrial power and technological advance make rapid rearmament possible. This happened with Germany in the mid-1930s. It could happen any time with Japan today.

The exacerbation of inter-capitalist rivalries, the eruption of trade wars and of increased protectionism, or the appearance of semi-autarchic trade blocs, are closely correlated with periods of long depression. It seems a moot point to determine whether they are causes of such depressions, consequences of them, or consequences which tend in turn to make the depressions longer and deeper. I tend to agree with the third position but it doesn't seem to make a big difference in any case.

What is important is rather the fact that the decline of a given power's hegemony, and subsequently the impossibility for its currency to be any longer accepted as 'world paper money', as a real substitute for gold,[7] is not followed rapidly by the emergence of another hegemonic power substituting itself for the former. Neither the yen nor the Deutschemark have taken the place of the dollar.[8] Whether the ecu could is still an open question.

So the conclusion is that such a substitution can occur only at the outcome of a long inter-imperialist struggle for world hegemony, and that struggle does not necessarily have to lead to world wars, as it did in 1914 and in 1939. It does lead to an increasing weight of arms production and exports, but these can be partially 'absorbed' through 'local' wars (there have been eighty of them since 1945!). So while I would not accept the concept of 'long war waves' or even less of 'long war cycles', I would accept that there are long waves of inter-capitalist rivalry correlated with long expansions and long depressions. Rivalry, whether in the form of trade wars or military conflicts, tends to grow in long depressions, and it tends to be less explosive in long expansions.

All these long-term movements, some of them in parallel, some of them contradictory to each other, are synthetised in the fluctuations of the average rate of profit. We are again back to basics. Under capitalism, the rate of profit is the *result* of the operation of *all* mechanisms proper to the system. No monocausal explanation of that mode of production, nor of the crises, nor of the business cycle, nor of the long waves of development, is possible. All are products of the interplay of all the basic contradictions, in plural, of the system. This was explicitly stated by Marx. I fully concur with him, not because *ipse dixit*, but because 200 years of historical evidence confirm the correctness of that diagnosis.

NOTES

1. For example: the pressure of war economy which led to a leap forward of discoveries in blockaded Germany during the First World War; the giant research effort spurred on by the US decision to manufacture the A-bomb during the Second World War; and the powerful impulse given to research by the upsurge of ecological consciousness in the last 25 years, and so on.
2. The explanation of crises by a 'profit squeeze' as a result of rising wages is quite different from its explanation through a decline in the rate of profit. An increase in real wages does not necessarily lead to a decline in the rate of profit. It can be neutralised or even overcompensated by an increase in the rate of surplus value (a strong rise in the productivity of labour in the wage goods industry), by a decline in the organic composition of capital through a cheapening of raw materials and equipment, or a combination of both these trends.
3. See my essay: 'Historical and institutional determinants of long-term variations of real wages' in Peter Scholliers (ed.), *Real Wages in 19th and 20th century Europe* (New York: Berg, 1989).
4. Recently, interesting supplementary points have been made in the international debate: institutional rigidities are obstacles to radical changes in the system of management. New technological sociopolitical paradigms call for new social–political institutions. It seems to me that these are but paraphrases of the thesis that new (and higher) degrees of social control of capital over labour are needed, for all the advantages of a technological revolution in the field of increasing the rate of surplus value to be reaped by capital.
5. In the same way, the divisions of the bourgeoisie between more 'liberal' and more 'reactionary conservative' wings have historical roots, in the

way in which the bourgeoisie conquered power: through a radical revolution (USA; France); through a revolution ending in a more moderate compromise (England); through a 'revolution from above' which maintained the aristocracy's hold over important parts of the state apparatus, especially in the army and the diplomacy (Germany; Italy; Japan).

6. See my essay 'Gold, Money and the Transformation Problem' in Ernest Mandel and Alan Freeman (eds), *Ricardo, Marx, Sraffa* (London: Verso Books, 1984).
7. The disintegration of the 'gold-exchange (dollar)-standard' expresses itself in the dual movement of 'dedollarisation' of the imperialist countries' and of world trade on the one hand, and of 'dollarisation' of most of the Third-World countries on the other.
8. We should distinguish the problem of the use of certain currencies as reserve currencies of other countries' central banks, and the use of currencies as means of credit and private investments (for example, through international bonds). The yen and Deutschemark play an insignificant role in the first field, but a much larger one in the second.