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"Rhythmics of Economic Life" (Om det ekonomiska livets rytmik). 322 pp. Stockholm, 1928.

"Problems of American Monetary Policy" (Federal Reserve bankernas penningpolitik, Kapitaldisposition och kreditransonering, Penningpolitikens normer, Prisnivå och räntepolitiken). 75 pp. Ekonomisk Tidskrift, Uppsala, 1928-30.

"Dynamic Problems of Value" (German: Dynamische Wertprobleme). 36 Pp. Zeitschrift für Nationalökonomie, Band II, Wien, 1931.

* "Some Lessons of the World Depression." 43 pp. Stockholm, 1931.

"Current Economic Problems" (Det ekonomiska läget). 725 pp. A bi-monthly review. Stockholm, 1928-31.

* "Quantitative Economics." 35 pp. Weltwirtschaftliches Archiv, Kiel, 1932.

ECONOMIC PROGRESS AND ECONOMIC CRISES

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INTRODUCTION

It was a hundred and seventy-five years ago that the first publication of the first school of political economy appeared. The physiocratic school thus initiated asserted, in opposition to the mercantile policy of the time, that it is in the interest of the whole community that economic laws should be allowed free play and should, without interference, govern the organism of industrial life. The leader of the physiocrats, Quesnay, had originally been a physician, and it was thus natural that he should apply the anatomical line of thought to the functions of the body-politic; the circulation of the blood, which at this period was becoming recognized, gave, too, a natural and simple image of the circulation within the economic sphere.

The conclusions of the French physiocrats were carried on and developed by the English political economists, whom nowadays we call the classics, and these laid the very corner-stones in the foundations of political economy. Clear insight was now achieved into the fact that in the community, as in the human organism, there should be a somewhat elaborated *distribution of labour* in order that the best possible results should be obtained. Finally, it was found that the economic process is as a rule based upon an adaptation of *the law of least expenditure*; because there is a limited supply of all commodities, of all the means of production, it is

important to attain the end in view with the least possible outlay.

Agriculture had naturally been the principal object of enquiry in France; in England it was focussed much more upon international trade. But the underlying theory was the same. That which was investigated was the circulation of commodities in a static community which was assumed to be in a state of equilibrium, and in the further development of the theory the economists became more and more tied to this assumption. Simultaneously the world was becoming industrialized, and with each decade economic progress set its mark more deeply upon the life of the community. The breach which first appeared at the threshold of modern times between the economics of equilibrium and economic reality grew constantly wider. More and more phenomena were left unexplained as a result of the assumption that the exchange of agricultural products and trade in goods between individuals or between static communities constituted the whole substance of industrial life.

Only when *the formation of new means of production and development* can be included in economic theory have we provided a bridge between economic process and economic reasoning. In actual fact it was not until the very last decade that economic research began to look for a new formula which permits of an explanation of economic progress. Such a theory, which takes cognisance of the changes attributable to time, may be called *the economics of time*, and it is with some of the aspects of the economics of time that we shall deal in this book.

It is, however, important to define from the beginning the boundary line between the economics of

equilibrium and the economics of time. The economics of equilibrium do not follow economic occurrences by the path from one point of time to another, they do not proceed from actual observations, but from a general conception of the nature of economic interdependence. The economic organism is accordingly regarded as specifically a construction fixed once for all, that determines the various conceivable processes of trade. It is said that a certain cause produces a certain effect in the same sense as if one says that scissors close when their handles are brought together. One describes what happens and how it happens, but says nothing about time or the extent of time. Everything is to be found in such an economic law except reality; it is only life itself that is missing.

The economics of equilibrium, accordingly, pronounce upon what may be supposed to happen in various circumstances, but say nothing about the actual magnitude of the changes and nothing about the part played by time in this connection. While the economics of equilibrium are *hypothetical, qualitative, and timeless*, the economics of time are *concrete, quantitative, and determined by time*. The economics of time proceed from actual observations and use these as the foundation for more less precisely expressed laws. This often involves only a reconstruction of the argument of the economics of equilibrium in so far as what was formerly put forward as an universal law is divided, in the light of experience, into distinct clauses applicable to distinct periods. The field of research is therefore enlarged to include various divisions of time; it is the task of science to determine both the continuity *within* the various economic periods and the connection *between* these several periods.

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At the back of this altered application of the subjection of economic science to laws lies an altered conception of the nature of economic causation. The classic economists still lived in a world in which all changes were referred to a simple rather than a complex cause. Nature and mankind were supposed, on unknown or irrelevant grounds, to supply reason for these *primary causes*, and it was the business of economic science to define the consequences of their intervention. Nowadays this conception is giving way step by step to the natural-scientific view of causation which excludes all primary causes and limits itself rather to describing the connection between the varying phenomena changing with time. Exact economics, however, like chemistry, physics, and biology, sets out to fix definite, objective designations for actual, directly observed changes.

Economics of this kind need not fight shy of the part played by time and evolution in economic life; its task is just, starting from the changes as data, to adapt the theory to them. A description which, like an anatomical chart, depicts the construction and functions of the normal organism is not enough. It is no longer merely a question of circulation within the body-politic; it is necessary also to study the body's growth and changes. Social anatomy, in other words, must be completed by a science of social development.

CHAPTER I

ALL THINGS MOVE

THE HOUR-GLASS, THE PENDULUM, AND THE SCALES

ALL life is movement. Even in economic life there is movement; variability is inseparable from reality. If we look backward in time, we can map out some little of the region through which mankind has wandered; if we look forward, an infinite number of paths radiate to the horizon, but we cannot positively determine which of them will be taken. This alone we know with certainty, that the life of the community, in the future as in the past, will be subject to the law of change.

“Everything is in a state of flux” was the dictum of Heraclitus, applied by him to the composition of matter, but it may also serve as motto for the economic investigator. For it is his business to investigate the laws of that actuality which is fluid or is subject to change. We describe the condition of the economic organism at a given moment, but we must also enquire how that condition is altered during the process of time. The interaction which takes place in time between the various factors must be analysed if we are to arrive at a satisfactory explanation of the most obvious changes. Economic progress, economic crises, and economic periods of varying duration can only in this way be brought within the bounds of economic theory.

To illustrate the nature of economic changes we may employ the same image that was in the mind of the Ionian philosopher when he said that everything is fluid, namely, the image of the restless surface of water. In the undulation of water we can distinguish three several elements. In the first place, we know that a wave takes a certain time to accomplish its sweep. In the second place, we can see that the wave implies a pendulum movement in the water, a change which after a certain time brings back the swaying molecules of water to their original position. And in the third place, we can understand that a certain equilibrium prevails in this regular movement, an equilibrium which causes each particle in the swinging mass to occupy a certain position in poised relationship with all the rest.

Time, recurrence, and equilibrium are thus three essential elements in economic mutability. As symbols, it is perhaps convenient to adopt the simple physical instruments which illustrate these phenomena—*the hour-glass, the pendulum, and the scales*. Let us consider in turn the three economic attributes which correspond with these physical phenomena.

The Hour-glass

Time is the essential measure of economic life. One may say that the economic idea first arose when living beings became aware of the significance of time, when they ceased to live entirely in the present. So soon as an individual begins to gather stores, to provide himself with a dwelling-place, or to manufacture weapons, there is the consciousness of time, and with it the creation of capital. For the buried bone just as the stock

of steel ingots, the bird's-nest just as the skyscraper, the worked flint just as the harpoon-gun, constitute capital; they imply that work is performed in *anticipation*, that one forgoes immediate consumption in order to regulate nature's supplies and his own labour in the service of *future* consumption. Time has been expended in this anticipatory capital-creating labour, and time passes between production and consumption.

Here we have come at once upon the most distinctive characteristic of capital: it must always be considered in connection with a measure of time. The forces of nature are constantly at our disposal if we have the tools with which to make use of them. The soil is there to be cultivated, the forest stands ready to be felled, the waterfall to be harnessed, the ore to be crushed. Man's muscles and brains can get to work at once, but in order that man may make use of his own and nature's forces something further is needed, namely, time.

During the time which is consumed in crushing the ore, smelting the iron, forging the ploughshare, ploughing, sowing, and reaping, man has no immediate return for his labour. *The tool*—in this case the plough—and the ploughed soil constitute new capital which, in the future, comes into recurrent use, but during the time in which the new capital is being amassed it produces no return. Thus it is necessary that the sections of society which are occupied with the creation of capital should be maintained by the remaining sections which produce articles of consumption. Food and clothing, warmth and light, must thus be provided for the sustenance of the creator of capital.

But then one asks: "Why should there be people who are willing continually to renounce their oppor-

tunities of consumption in order to subsidize the creation of capital?" The answer is that these people, the savers, desire to form a stock, a reserve, to which they may resort in the future. But this involves that industry shall be able to recompense their services. The savers (or suppliers of credit) often expect to make a profit out of the transaction, for they count on a continuation of economic progress in the future. For this, capital is required. When the savers apply their purchasing power in a particular way, they reckon that the supply of certain capital commodities, such as electrical machines, or of certain articles of consumption, such as news paper, will increase in the future. They consider that there will be room for an increased output of electrical energy and of news paper without a fall in price, so that the average profit, the interest on capital, will be maintained. The savers expect, in other words, that the consumption, the purchasing power which they forgo and place at the disposal of the electrical machinery and paper industries, will in time yield a profit at least equivalent to that which may be obtained in other quarters for a similar service. Their choice of the electrical or the paper industry depends upon their expectation of an exceptionally large return on investment in these spheres and, consequently, of a larger profit than is obtainable on the average at that particular time.

Of course, this calculation may turn out to be correct, but it may also be incorrect. For if a large number of persons invest their savings in the same way, it comes about after a time, when the new factories have been established, that there will be a vastly increased output of electrical machines and news paper. Unless the community will now relatively curtail its other require-

ments in order to consume this surplus, the demand will not equal the supply. The left-hand diagram in Fig. 1 illustrates the tension which in the course of time arises between output and demand. In this case, it follows that the price of electrical machines and news paper must fall unless stocks are to be constantly increased. But the fall in price involves a reduction in the interest on capital, supposing the cost of production to remain constant. The savers thus do not get so large

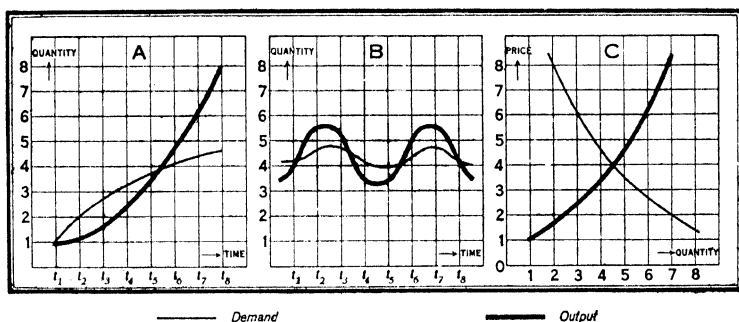


FIG. 1.—DEMAND, OUTPUT, AND TIME

Diagram A shows how output is increased more and more as time goes on, although the increase in demand grows less and less.

Diagram B shows how this tendency on the part of output to exaggerate the variation of demand causes a wave movement.

Diagram C shows how demand rises with falling prices and how output rises with rising prices.

a return from their invested capital. One says then that this capital has suffered a diminution in value.

This preliminary glance at the part played by time in the relation between production and consumption has thus brought us to the conclusion that the value of a commodity always stands in relation to a certain measure of time. Value, therefore, is not absolute. And this implies not only that the same thing may have very different values for different persons and in

different places, but that time always enters as a determining factor into valuation.

Accordingly, we always try to estimate how long the more or less scarce and more or less useful commodities will be at our disposal, nor can we think of anything that has value and is not subject to alteration of value. A pair of gloves has a high value during a skiing expedition, but this conditional on their being available for a long time. A pair of enchanted gloves which dissolve in the air in a second have no value as a protection against the cold. In so far as the gloves have durability they acquire value, though this value is variable. For if my hands are chilled I set a particularly high value on the gloves for the first ten minutes and somewhat less for the next five, when my hands have grown warm, and so on. We see from this example that so soon as we mention value we bring time into the discussion, and that value postulates the possibility of change in value. The value of a commodity is thus dependent upon its usefulness, its scarcity, and the time during which it remains available—all this in relation to all other commodities. For the individual there arise, moreover, a number of other personal considerations which affect the valuation. If one strikes an average for a number of individuals one excludes, however, the personal or irrational elements in the valuation, and arrives at a *typical* value of the commodity in relation to all other commodities for the section of society in question.

But it is not enough to say that time thus always enters into every valuation. When one speaks of articles such as iron, bread, or gloves, such an explanation serves, but when one comes to the factors of production—the primary commodities which must be at

the disposal of all production—one can make a sharper delimitation. The value of *natural resources* depends essentially upon their being, humanly speaking, inexhaustible. A building site or a waterfall may be counted on as a permanently available commodity; what one pays for when one buys a site is, therefore, its usefulness and its scarcity in relation to other variously situated sites, and also the perpetual right of disposal over the site which, as a natural resource, may be supposed not to undergo any change.

When we pay an artisan for five hours' *work* we remunerate the usefulness of his labour to us and the relative scarcity of his skill as a workman in relation to all other work. (We disregard the maintenance of price by monopoly which, in this case, is expressed by a certain standard wage maintained by the union of all workmen within the trade.) But we pay also for the time which was spent on the work. We may rent or purchase a natural resource, for example, a building site; in other words, we may acquire temporary or permanent right of disposal over the natural resource. But as regards human labour, in modern times one can only hire, and cannot buy it. Here we have only a limited right of disposal, and one must go back to mediaeval conditions of life or the ancient slave states to find examples of the conception of human labour as purely a natural resource.

Capital as a factor in production occupies—as we have already indicated—a quite different position from that of time and the two last-named factors, natural resources and labour. Whereas natural resources and labour are commodities which, side by side with other qualities, have also a time dimension, it may be said of capital that its *essential* quality is its duration. For,

speaking generally, capital is best defined as *the factor of production which helps us to overcome the economic consequences of the fact that production takes time*. Capital is the purchasing power which might be applied to direct consumption, but which instead makes possible the creation of new means of production. Capital is the commodity which carries over *a part* of the day's consumption to that section of industry which is making provision for the needs of to-morrow. But, as this commodity is essentially measured by determining how long production for the future can be extended, one may say that *capital is time* which is placed at the disposal of the producers.

Since we have found that the importance of time to economic life gathers round the conception of capital, it is not surprising that the one economist who has perhaps contributed more than any other to the understanding of the nature of capital, has also more than any of his predecessors emphasized the decisive part played by time in all economic connections. This was W. S. Jevons, who was the forerunner of that modern economic research which seeks to analyse the nature of economic changes.

The Pendulum

Although the hour-glass is the most important economic symbol, because it enters into every calculation of value and determines the course of every event, there are yet other fundamental phenomena. We have mentioned the pendulum as an image of the tendency to recur in economic conditions. Every harvest, every building season, every logging season remind us of the periodic element in industrial life, and the regular

recurrence of economic crises gives us grounds for the assumption that there are longer periods than the year and its seasonal wave.

But, before examining these various periods with their extremely varied causation, one should clearly recognize that the pendulum movement may be regarded as a universal law which, in greater or less degree, governs the mutability of economic life. It has been said with reason that "in the nature of things it is ordained that no tree can reach the skies". Actually this image is only half appropriate, since it fails to take into account that the mutations in the life of the community have a markedly periodic tendency. Let us take a couple of examples to illustrate this fact.

If the price of rubber rises owing to an increased demand for motor tyres, this will influence the cultivators' production policy. Cultivation will be extended, new plantations will be laid out in order to take advantage of the high price and its promise of large profits to the entrepreneur. For some time, perhaps, demand and supply will maintain an equal growth, but before long it will appear that the demand for rubber cannot permanently continue to rise at that rate. The plantations are by this time established, capital has been extended, and if the demand does not come up to expectation, the planter must take the consequences in the form of diminished profit. For so soon as it is clear that rubber stocks are beginning to increase, the rise in price ceases and is succeeded by a fall. This drop in prices hits the weakest undertakings hardest, those which are barely able to pay interest on their capital. At first, these weak undertakings will trust to a big turnover. Instead of reducing output, they try to attract buyers by fresh cutting of prices,

and hope by this means to improve their earnings. But very soon prices fall throughout the market, and it becomes impossible for these rubber planters to check the movement. They close down one after another. Thus gradually the output comes to be reduced and, in course of time, the demand draws level with the quantity produced and the fall in price ceases. Presently it is the demand which grows faster, with the result that the price rises, and this in turn induces speculative accumulation of stock and a further rise in price. And so the process is ready to be repeated.

This example shows us that the periodic or cyclic movement is characteristic of economic changes. The variations of supply and demand have accordingly the tendency to alternate rise and fall, which is illustrated by the centre diagram of Fig. 1 (page 5). An example derived from another source will, however, show us that this wave motion may be of a very complex character, and that one cannot without qualification predict an early revulsion from every persistent rise and fall.

At the beginning of the nineteenth century the examination of economic problems in relation to population had led to the conclusion that wages could not, on the average, exceed the amount which is barely necessary for the support of a normal family. If, in consequence of increased enterprise, the demand for labour should rise and wages be increased, the standard of living would inevitably improve. But, it was argued, such an improvement would bring about a great increase of population, for it was precisely the low standard of wages which hitherto had kept population in check. When, after a couple of decades, there was a great increase in the number seeking work, the wage

level would be forced down again, and the standard of living would return to its original low level corresponding to the level of subsistence. The argument thus amounts to this, that wages, the standard of living, and the increase of population have a distinct tendency to follow a wave movement having about three decades of rise and three decades of fall, while the average level remains stationary.

How far has this law of economic periodicity held good? As far as the wave movement itself is concerned, it is a fact that from the beginning of the nineteenth century a wave movement may be observed with a wave length of about sixty years in price level and wages level and that the maximum points in increase of population show a tendency to correspond with the minimum points in price variation. Thus far, the thesis about the connection of the generational fluctuations with economic life has not been challenged. But the other part of the contention concerning the average immutability of wage level has proved over-hasty. For if there is anything which characterizes economic development during the last half-century, it is the marked rise in real wages and in the standard of living. But just as little as the contention of the immutability of these factors can be accepted, should one conceive that this increase must continue for all eternity. There may be a question in this case of a period running into centuries.

The theory which we are now discussing and which has been popularized under the name of the "cast-iron wage level" was first developed by that brilliant economist, David Ricardo. In his conviction that all changes sooner or later liberate forces which re-establish the former state of affairs Ricardo was, in a

way, the first to emphasize the periodic tendency in economic life. Actually it is only indirectly that one can draw this conclusion from his reasoning, for Ricardo had little understanding of the part played by time in the mechanism of economics. He tries to show why the factors of production and the products *must* affect one another as they in fact do, why it is in accordance with natural law that it is so. For the various factors to revert to the given state of equilibrium after disturbances have upset the balance certainly requires time, but this time is, for Ricardo, a matter of small importance.

The Scales

Ricardo insists much more strongly on the part played by equilibrium in this connection, but that principle had already been laid down earlier as the foundation of the theoretic interpretation of economic life. The "natural sequence" which the French physiocrats describe rested ultimately upon conceptions of what was legitimate in the prevailing system. The *tableau économique* which they drew up showed that commodities describe a curve which must rest upon the principle of equilibrium. Here the physiocrats—as mentioned in our introduction—made use of an analogy with the circulation of the blood in the body, whence they deduced that economic health demands a sound and well-balanced circulation of commodities.

The necessity for preventing checks in the economic circulation of commodities *within* a community was, however, discarded by Adam Smith and Ricardo in favour of the conception that the circulation of commodities ought to proceed unchecked *between* different communities. These views, the French and the English,

on political economy, are not in any way opposed to one another, but none the less there continues even to our times a separation between these two streams of thought. Differing in their economico-political programme they have followed different grooves, the one demanding the adjustment by monetary policy of cyclic fluctuations, the other maintaining the doctrine of free trade. The prejudice which is more characteristic of political doctrines than of economic theories has further needlessly increased the distance between them.

In the region of *theory* there is no such opposition. The physiocrats' notion of equilibrium which lies actually at the base of the primary theoretical construction of political economy is assumed and followed up by Ricardo. His demonstration, mentioned above, of the average constancy of wages in relation to a fixed point may be said to be a conclusion from the principle of the completed curve. This balance is best illustrated by the image of a pair of scales of equal weight swinging from a fixed point of suspension.

But in this picture there is one consideration which is thrust into the background, and that is time. It is insisted that equilibrium is finally attained between the rising and falling scales, but no account is taken of *how* this movement comes about and for how long the adjustment is in progress. The time which is required for the attainment of equilibrium is left completely outside the problem just as the time occupied in the process of weighing has no significance in the result of a chemical analysis.

It is from the French economist Leon Walras that this line of enquiry obtains its most consistent development. From the physiocrat Quesnay to the founder of the "mathematical school", Walras, there is a line of

development in political economy tending towards a *timeless* economic system. Let us take a couple of examples to show how they reason upon this basis.

It is said that in order to achieve equilibrium in the market a certain enforced relation must prevail between demand, output, and price. Experience tells us that output increases with rising prices and that demand increases with falling prices (see Fig. 1, page 5, right-hand illustration). At a certain point it happens that the demand and output curves intersect, and this must be the condition of a state of equilibrium. But both curves are based on the assumption that "the remaining conditions remain constant", which implies that cognisance has not been taken of the actual changes in time. What our diagram of the two curves illustrates is a supposition but not an actual occurrence.

Let us suppose that we follow the development of the wheat market for several days in succession. We shall find there, for example, that wheat is quoted at 57, 59, 58, and 56 cents per bushel on four consecutive days. In order to arrive, on the first day, at the figure of 57 cents one has by no means studied any curves of output and demand, but equilibrium *may be supposed* to have been reached by some such balance between supply and demand. Next day the demand is keener, but new consignments of wheat have not come into the market and the price then rises to 59 cents, but on the next day again an increase in the year's harvest is expected and the price recedes to 58 and later to 56 cents. What we are now describing is a development in time, but each day has its supposed curves of supply and demand whose course is *timeless*. The notion of equilibrium cannot accordingly in this case be associated with the changes of time.

To take another example, the so-called quantity theory may, in its quite simplest form, be described as follows: quantity of money $\times$ its velocity of circulation = quantity of goods $\times$ their price level. The proposition thus asserts that if, in connection with unproductive public works, for example, more notes are issued and thus the supply of money is increased, the price of goods, other things being equal, will rise. The expression "other things being equal" here signifies that the speed of circulation and the quantity of goods remain constant. This phrase also indicates an assumed condition of timelessness, and this appears even from the form of the law. For the mathematical method of statement with two sides separated by a sign of equality assumes that the law, as in the natural sciences, is constantly valid. If I write

$$2 \times 6 = 4 \times 3$$

the statement is unalterably correct under all conditions. But the quantity theory moves on a different plane on which time and change perpetually break in, although one pretends that the hypothetical timeless conjunction corresponds with the time-determined causal coherence of reality.

What Walras accomplished was to describe the *whole* of economic behaviour by means of a comprehensive system of equations. Prices, wages, interest, all have their place in this spacious building resting on the foundation of a universal equilibrium. The entrepreneur pays ground-rent, interest on capital and wages, and sells his product to the consumer, who, in actual fact, is identical with the landowner, the capitalist, and the workman. We have here a circulation system too, but the notion of equilibrium is in this

case followed out to its utmost limits. No alteration in the price of goods or in production can be conceived without its affecting the entire system; all hang together like the links in a chain, all the factors are, as we say, "interdependent". But it is to be observed that this reciprocal influence is supposed to take place in a moment. There is no place in the equation for the passage of time, and, what is most serious of all, there is no consideration of the creation of new means of production, that is to say, of new capital. It is *timeless* barter that is under investigation, but not the formation of capital.

This mathematically expressed *tableau économique* of Walras has been compared, not without reason, with Newton's explanation of the planetary system. But there is a fundamental difference between the movement of the planets and that of the economic elements. We assume that the movements of the heavenly bodies are completely determined by causal laws, that the equilibrium which is ascribed to them is established. But when it is a question of economic changes we assume that time is perpetually introducing new disturbances and that equilibrium is accordingly only hypothetical.

So, when we are concerned to explain the cyclic movements and other actual time-determined changes, it is obvious that we cannot without qualification call in the aid of the notion of equilibrium. For if we base our enquiry on equilibrium we cannot explain the variations any more than we can study the paces of a horse by keeping it still.

Economic theory must therefore in some way *combine the study of conditions of equilibrium with that of the changes wrought by time*. The scales of Walras, the pen-

dulum of Ricardo and the hour-glass of Jevons must serve simultaneously as symbols in economic research. No generally accepted solution of this problem has yet been provided, and in this little survey we shall limit ourselves to showing why such an economic theory is urgently required and why at the present time no problem in economic science engages in a higher degree the interest of economists.

CHAPTER II

FIXITY AND FLOW

CLOCKWORK AND CLOCK SPRINGS. SELF-CONTAINED INTEREST PERIODS OF VARYING LENGTH.

WHEN one has taken an instantaneous picture of the economic mechanism of the community one has included everything which is not dependent upon the bearing and significance of the extent of time. This is what the economics of equilibrium have accomplished. Merely by disregarding the changes of time it has been possible to lay down in a very clear and definite manner the bases of the economic structure. All the subjection to laws which we lately symbolized by the pendulum and the scales thus obtains a one-sided but vivid illumination, and in the history of political economy the theories of Ricardo and Walras will always be held in honour as the fundamental theories of our science.

How completely formal this theory must nevertheless be considered appears from the position in such a proposition of the conception of capital and value. *Capital*, the essential attribute of which is its extent in time and which may positively be said to be a measure of time, is to be regarded as a timeless phenomenon. In such an exposition capital can only be described as the supply of unemployed purchasing power which is available at a given moment.

Value is treated in an even more stepmotherly fashion by the timeless economics of equilibrium. Only when the changes of time are taken into account does value obtain deeper meaning and substance; even by taking into consideration the *conception* prevailing at a specified moment about the future changes of value, one gives no picture of the actual course of change. Even though the photograph of a running horse perhaps tells more of the horse's movements than one of a horse standing still, one does not, in any case, get from such a picture a description, and still less an analysis of the movement itself.

Clockwork and Clock Springs

The question then is, is it impossible to combine this timeless reconstruction of the economic process with another theory indicating the laws governing the changes occurring in time? Can we, all things considered, form a bridge between the timeless economics of equilibrium and the economics of time? Would it not be possible to "translate" the timeless construction's theoretic content in such a way that it could more or less be applied to the time-determined reality? All these queries come in the end to one and the same thing, namely, the question how far the fundamental equilibrium theory requires of necessity that the causal sequence shall be timeless. Before we try to provide an answer to this extraordinarily significant question, we will make use of an image to assist us in correctly elucidating the difference between the state of equilibrium which in the terms of physics one is accustomed to call static and the changes which correspondingly are counted as dynamic.

We suppose that we have a piece of clockwork whose interacting cog-wheels represent all the different elements of economic life. When we describe the appearance and relative position of these wheels we also tell much concerning their action *if* the mechanism be set in motion. For the size and the grouping of the wheels in themselves betoken their manner of working. Now, it may reasonably be asserted that the economics of equilibrium, the static, supply essentially such a *description of an actual state*, which starts from the assumption that complete mobility prevails, but—so that equilibrium may be preserved—no movement.

Suppose, now, that we fit an actuating spring to our clockwork and a dial upon which hands indicate the movement of the clockwork. We may now suppose that each of the three hands corresponds with a period in economic life. The hour hand thus represents in each revolution a “secular wave”, that is to say, an extended variation with a period of several decades, the minute hand a cyclic variation of some years’ duration and the second hand a seasonal wave, that is to say, a wave of one year’s length. In order that the image may in some degree correspond with reality we must, however, add that it is not so much a simple spring which actuates the clockwork as a whole system of springs of varying strength, and that the three hands do not, as with an ordinary clock, revolve in strict relation to one another.

Having added the springs and the hands, we have brought the clockwork into action and made it possible to read its movement. In other words, we have amplified the description of static conditions by a description of the industrial progress which takes place when the clockwork is actually set going. Our image has

thus pretty clearly exhibited the difference between the description of given conditions by economic statics and the representation by economic dynamics of movement and change.

We are now faced by the question whether it is possible to combine these two methods of investigation as, in our image, we were able to combine a demonstration of the attributes of the clockwork with a description of its mode of action, when the clockwork was set going? It may be that the image provides an indication of the right answer by this very question. For in the progress of the three hands we have a point from which to judge of the changes, a possibility of dividing them into certain groups with dissimilar causation. Could we also, at least in part, extend static timeless equilibrium so as to comprise certain limited periods? That is the salient point.

Periods of Varying Duration

If it can be shown that each of the three periods—seasonal, cyclic, and secular—actually constitutes a defined unit in time, then we have found a starting-point. For just as each moment has its static position of equilibrium so could each of the periods we have mentioned be distinguished by its dynamic equilibrium. What we are then concerned to enquire into is (1) the laws of economic interdependence within each type of period, and (2) the laws of the connection and interaction between the different periods. In this line of speculation it is accordingly *the periods* which form the framework of the investigation. The periods, as represented by economic statistics, are the units, the building-stones from which one proceeds to theoretical

syntheses. The formal precision at which the economics of equilibrium arrived, on the assumption of a timeless, static community as the object of research, may also serve the turn of the economics of time provided that each of the separate economic periods is regarded as a self-contained whole.

The fact is that the economics of equilibrium—that is to say, practically the whole of theoretic political economy—derives the basis of its laws from economic processes which run their course over periods of time of greatly varying duration. The static laws determine the co-operation of the various factors according as these have a tendency to develop “in the long run”. This “in the long run” really amounts to an average of economic processes during periods of different length. For the mutual relation between various factors—between interest and price level, for instance—is quite different during periods of different length.

What, therefore, concerns us is to *apportion* the timeless laws of the economics of equilibrium to different periods and, in place of a theory of timeless association which still ultimately is founded upon causal association during very dissimilar periods of time, to establish laws each of which applies to a certain economic period. This it is which perhaps is destined to be the line of development of dynamic economics.

In such a theoretic reconstruction one comes quite naturally to start from economic statistics and thus, as in the natural sciences, to let the material of observation serve as the basis for the explanation of causal association. The phraseology of the economics of equilibrium, which from its timelessness often acquires a metaphysical tinge, has with difficulty been brought

into touch with reality. It is founded upon a kind of general conception of what is valid in economic life, and this conception is clothed in the form of a timeless law.

A law in the economics of equilibrium has thus the following appearance: "if the interest on loans rises the price level tends to fall". If one wishes to test this by economic statistics it is manifest that the absence of any specification of time deprives such a test of all real value as evidence. For it may be asked, how much must the interest on loans rise for the price level to be affected and for how long a time does this causal association extend? The problem assumes a quite different and much more definite form if one says: "Within the prosperity phase of the economic cycle an increase of 50 per cent in the loan rate is likely after, on the average, two years to induce a reaction in the movement of price levels". We shall return later on to this aspect of the question and illustrate it by examples.

We are here concerned to define the general framework of the proposed dynamic method of research. We have already mentioned in passing the separate economic periods, and since these constitute the whole basis of the theory, it is important clearly to indicate their boundaries at once. We say now that *seasonal periods are all periods of a year or part thereof; that cyclic periods are at least one and at most ten years long, and that secular periods are more than ten years long*. For the two last-named kinds of period, the mean figure of economic statistics specifies on each occasion the exact average duration of the period under consideration.

Interest Rate as a Standard

But it is not enough to define the duration of the periods; we must also proceed from a certain economic phenomenon whose periodic variation may serve as a standard for the whole theoretic exposition. There is no need to hesitate for long when it is a question of such a fundamental economic factor as may be said to express the community's attitude to production and consumption. The required factor is *the rate of interest*.

We have seen how the consciousness of time lies at the base of every economic process; to save is to carry over to-day's power of consumption to to-morrow, but in a progressive community it is also to make possible an increase in the extent of the means of production. Speaking quite generally one may say that the rate of interest on capital is a *quota*, a relative figure, which indicates how the community desires to apportion its present and future consumption. It defines the relation between the valuation of future and present provision for requirements. If the rate of interest be low, confidence in the future, the desire to provide new means of production, is relatively small; if the rate of interest be high, a great demand prevails for accumulated buying power, and the community has a lively interest in increasing the amount of the means of production and therewith the possibilities of future consumption.

Let us suppose that in a certain country during a series of years, one observes the following rates of interest on loans:

1st year	2nd year	3rd year	4th year
3 per cent	5 per cent	7 per cent	3 per cent

Up to and including the third year the demand for accumulated purchasing power grows more and more intensive; there is expectation—as in the instance quoted earlier of the electrical and paper industries—of far greater possibilities of profit by means of the increased formation of new means of production. But then gradually people go too far in their estimate of the future's potentiality in this respect; the *actual profit* of the means of production falls below the interest on loans, and there is, therefore, no purpose at this time in continuing the increase of new means of production. There is thus a connection between the interest on loans and the actual profit of the means of production (real interest) which both affects the desire of the public to save—to reduce the day's consumption in favour of the provision for the needs of the future—and the technically commercial result of productive activity.

This law of the connection between loan rate and real interest rate had already been surmised by the classics, but was first laid down in a generally applicable form by the most acute theorist among Swedish economists, Knut Wicksell. We shall return to this fundamental matter when we come to discuss the rôle of credit and financial policy in the economic cycle. Here we shall only emphasize the fact that even this law is a static timeless law, for it says nothing as to what period is under consideration. In actual fact it is quite certain that this connection, when it is enacted within shorter periods, say within cyclic waves of at most ten years long, is completely different in its nature from what it is when it takes effect over longer secular periods. When we select interest on capital (in the sense of loan interest rate) as the

standard for the dynamic theory, the *community's conception of the future, its willingness to apply purchasing power to new means of production* becomes the decisive factor. Only it must not be forgotten that this objective or psychologically determined rate of interest eventually, and particularly at the ultimate time of revulsion, is governed by the real interest rate, by the actual profit of the means of production. But, as an initial approximate value, loan interest rate represents the community's conception of time, its whole attitude to the mutual relation of production and consumption.

Fig. 2 illustrates the fluctuations of the American commercial loan rate during a long succession of years, and the different periods may easily be distinguished in the diagram: the autumn rise which recurs regularly every year, the short cycles with a duration of from two to four years, and also a long-continued movement which may perhaps be regarded as part of a wave with its lowest point in the middle of the eighteen-nineties and its crests round about 1870 and 1920. Here, as in many places in this book, it is American economic statistics which form the basis for investigation. We choose these in order to have the advantage of dealing with large numbers—in other words, the figures are representative of a vast community and thus many accidental or immaterial changes are eliminated.

Each of these periods may now be regarded as forming a complete whole corresponding with the moment of the economics of equilibrium. Just as, in the modern form of the classic economics of equilibrium, the whole theory is built up round a timeless system of price formation, so it may be conceived that the dynamic theory derives from the *balancing process* within economic

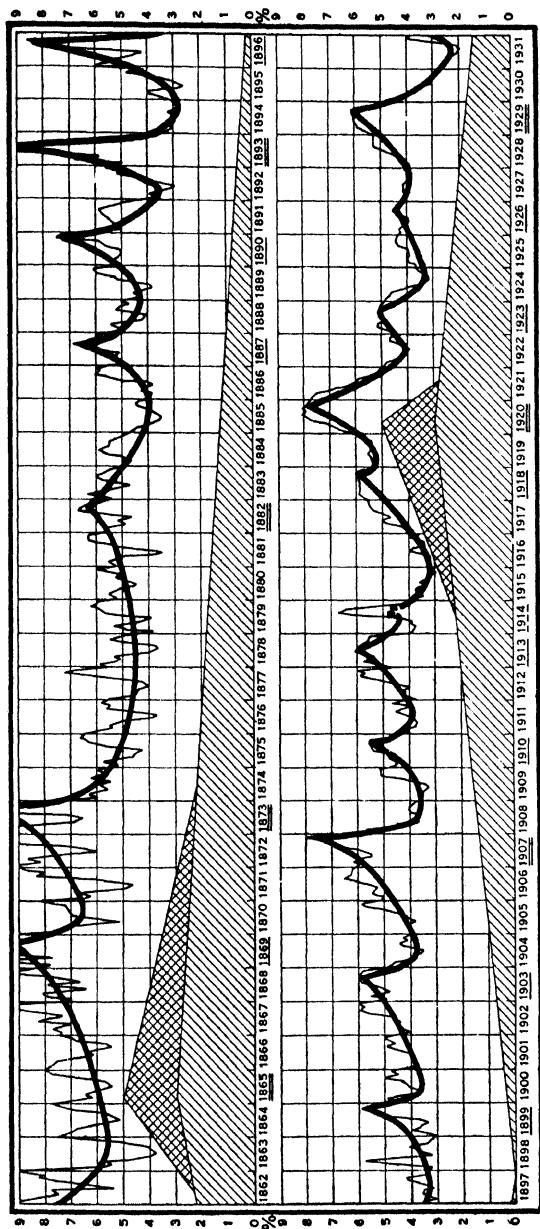


FIG. 2.—CYCLIC WAVES OF LOAN RATE

The thin curve corresponds with the mean rate on prime bills in the U.S.A.

The heavy curve is a smoothing out of the thin curve.

The diagonally lined surface indicates the general trend of the price level.

The cross-lined surface indicates periods of inflation.

periods of varying duration. These periods we may call balancing periods or *closed periods*, by which we mean that they may be supposed to constitute a complete circle. Production and consumption may be supposed to even out, so to speak, within these periods just as all factors maintain equilibrium with each other in the timeless theory. Interest on loans which is "the price of time" is now our standard, while the general price level may be said to be the most usual fixed point of the economics of equilibrium.

The Three Postulates of Change

Before proceeding to an examination of the course of trade within each of the completed periods we should once more define the basis of mutability. The typical community of the economics of equilibrium is not only timeless but also free from change. Mediaeval society has on good grounds been suggested as an example of a really static condition. In such a community there is no growth of capital and, consequently, no interest on capital (if loans applied to consumption be ignored as immaterial); the same acreage is cultivated year in, year out, buildings and implements are kept in repair, but neither production nor population undergoes any change.

In contrast with this may be placed the modern progressive community in which accumulated purchasing power constantly demands to be employed in the creation of new means of production; increase in population and improvement in the standard of living accelerate this development in which progress and change are the watchword of all economic life. If we lay stress on the most characteristic feature of this

progressive community we emphasize at the same time the conditions of economic mutability, and the periods, as economic statistics prove, must in the long run be referable to these postulates.

One may assume that many different phenomena are necessary to produce the variable, and particularly the progressive, community, but on reflection only three factors stand out before all the rest. We have already mentioned these postulates in the foregoing discussion, but will now once more recapitulate them.

The first condition depends upon the fact that *production takes time*. All economic life is based upon this fact. It is possible, without doing too much violence to reality, to conceive a community in which labour, goods, and capital are transferred from one place to another without the least time being occupied. A transfer in a single second of capital, of buying power, from one locality to another is already, thanks to electricity, an accomplished fact. An international trade and a domestic exchange of goods carried through in a moment would undeniably advance materially the satisfaction of the world's requirements. A momentary transference of labour from one part of the globe to another would mean a revolutionary simplification of the problem of unemployment. But these advantages are as nothing compared with the omnipotence which mankind would attain if production required no time. That the process of production requires time is, then, the fundamental condition of the rhythm which economic life now follows.

In order that a part of the community may be able to devote itself to production for the satisfaction of future needs, it is necessary for another part to forgo some of its purchasing power and thus maintain the

capital-producing section. (In actual fact most of mankind are both savers and consumers, but we shall understand better what happens if we distinguish between the two groups.) Before the days of financial organization it was often the case that the artisan obtained housing, food, and clothing from the employer, who thus was simultaneously capitalist and entrepreneur. The unexampled building work which was carried out in ancient times was made possible by slave labour, and the cost of maintaining the slaves largely governed the cost of production. As individual enterprise and financial organization gained a footing during recent centuries the method of disposing of surplus capital was changed to the formation of new means of production. Credit came into being, and thus made possible the application of buying power to the provision for future needs in an infinitely more flexible fashion. Whereas in the days of barter, goods were as a rule only exchanged for goods, it is possible through financial organization to exchange present goods for future goods. A person who pays a hundred-pound note into his savings bank account accordingly refrains from consuming goods to that amount, but obtains instead a mortgage on goods available in the future. In addition, he gets three pounds per annum, if the rate of interest is 3 per cent, as recompense for the contribution to the formation of new means of production which is thus made. *Credit*, that is to say, the modern financial system, is our second postulate for the genesis of the mutability which distinguishes the life of the modern community.

Our third postulate is of a psychological nature, for it depends upon the part played by *enterprise* in development. Were it not for mankind's desire constantly to strive after an improved solution of the prob-

lem of the provision for its needs, all activity in economic life would limit itself purely and simply to satisfying the demands of the moment. But in modern times all forces are straining to widen the bounds of production and consumption. We shall not, in this connection, discuss in what measure this fact is dependent upon changes in technical and commercial factors. We content ourselves with the assertion that the enterprise and initiative which maintain and accelerate economic progress are a condition of the rhythm of economic life.

The three postulates for the mutability which is inherent in the modern community are, therefore, these: that production requires time, that credit renders possible an exchange between present and future goods and thus throws a bridge over the time required by the productive process, and that the enterprise in the temper of mankind constantly releases new powers which force the growth of production and consumption.

In passing on after the first two chapters, the most important in point of principle, to an examination of the continuity within the various economic self-contained periods, the general lines here laid down should be borne in mind, for much of our attitude to the problems of the seasonal, cyclic, and secular periods follows from the principles here developed.

CHAPTER III

THE YEAR—THE NATURAL PERIOD

THE CIRCUIT OF SEASONAL VARIATION

How often it happens that one cannot see the wood for the trees. When we are discussing the economic relations of manufacturing countries and of countries producing raw materials we seldom consider how the earth's yearly circuit round the sun primarily governs the distribution of labour in the world's economy. The calendar year, which we often regard as an arbitrary demarcation of the stream of time, has, in fact, a significance for the whole sphere of economic life. The world's harvests are sown and reaped in accordance with this astronomical period; timber is felled, rafted, and shipped each in its own season; wool is clipped in spring and in autumn.

It may be said that all this concerns occupations that were already in existence before the industrialization of the world, and that, if one turns to industry, the year ceases to be a generally accepted period. But we shall soon see that industry also has its typical seasonal variations, and here we shall be content to point out that the year has also another bearing upon industry of the greatest moment—the year is the book-balancing period. It is common to the industrial life of the whole globe that operations are reviewed,

losses written off, profits distributed for an accountancy period which is just a year in length.

The Implication of Book-balancing

This annually recurring inventory and arithmetical review of each economic undertaking's position signifies nothing less than an attempt accurately to indicate the standing of the undertaking in relation to the preceding balancing of the books and also in relation to all the rest of industry. But the annually recurring statement of the undertaking's debit and credit items in a balance-sheet signifies also something else. The object, that is, of this adjustment of the book-keeping figures to the actual position is to restore the balance between fact and appearance which has been upset during the year.

We see here in practice a striking testimony to the fact that the first step that can be taken outside the timeless equilibrium system brings us to an equilibrium which is limited to a certain defined period. The year may accordingly be regarded as the natural accountancy period; within this period will be found a cycle of income and expenditure items which balance out. All the transactions which have been carried through have, in the end, as book-keeping by double entry requires, to be resolved into a balance between debit and credit entries.

We have no difficulty in conceiving such a balance-sheet when it involves only the exchange of goods for money or for other goods. Here the variation merely consists in the fact that our undertaking, in exchange for certain commodities, has received other commodities or services of precisely the same value. But there

are other causes of variation besides barter; there is *production*, which always precedes exchange of the commodities thus manufactured.

Now, if it were the case that this production did not require time, one would be able at every point within the book-keeping period, and especially at the end of the year, when the balance-sheet had been drawn up, precisely to determine the true position of the undertaking. There would be no stocks of raw materials and unsold finished goods subject to depreciation, nor any work in progress which might affect profits or losses. Finally, new plant for the undertaking could be thrown in with the buildings, machinery, and other means of production of an earlier date. New inventions and increased competition might certainly in the future be able to reduce the earning capacity of the undertaking; other economic, social, or political changes might have power to alter the situation, but the fact remains that, granted timeless production, one would be able satisfactorily to assess the actual present value of the the undertaking, on assumption that the remaining conditions as to the remunerativeness of production are unchanged.

But as it is the case that production requires time, and often a long time, it is not possible, even in the circumstances we have mentioned, precisely to estimate the assets and liabilities of the undertaking. During the time which elapses between the beginning and the end of the process of production, and even more between the beginning of work upon the construction of a new factory and its completion, the whole economic situation may have been transformed.

The balance-sheet which is formally drawn up in accordance with the books always finally involves an

attempt to assess the profit-earning capacity of the undertaking over a longer period than a single year. This point has often arisen in connection with the dividend policy of the great enterprises, and is a necessary consequence of the mutability of economic life. What may be asserted with complete certainty is that the variations in profit (real interest) cannot at present be stated in respect of a period of only one year's duration. And this is due not to flaws in commercial organization, but to a technical circumstance, that a great deal of new real capital—such as factory buildings, shipping, and machinery—requires more than a year for its preparation. The balance-sheet contains, therefore, a periodically prepared estimate of the undertaking's profit-earning capacity; a part of the entries which are then reviewed can be exactly stated because they relate to transactions which have been completed within the accountancy period, the year; another part of these entries can only be assigned a nominal value because they extend over economic periods of more than a year's duration. And *both* classes of entry may in the near future undergo a change of value by reason of alterations in the general economic situation. We may therefore conclude that the variations in the average return upon capital—in real interest—are of uncertain character within a period of only one year's duration. When, earlier, we compared the variations of real interest and the rate of interest on loans—that is to say, the variations in the actual profits of industry and in the price of loaned purchasing power—we were obviously not dealing with so short a period as a year. Thus, during the year it is the rate of interest on loans which controls the capital market. It is the *conception* of the present and future

profit-earning capacity of capital which finds expression in this rate of interest.

*The Seasonal Variations of the Rate of Interest
on Loans*

If we are to limit ourselves to the variations which occur within the year, we ought first to study the average changes in our "standard", the rate of interest on loans, from month to month. By a calculation of the mean figures one can arrive at a certain estimate of this seasonal variation, even though its changes are most significant as between one year and another. The curve of the seasonal movements of the American rate of interest, which is reproduced in Fig. 3, Chart A, and which is based on the original figures in Fig. 2 (page 27), gives also a graph of the mean of these variations over a series of years with fluctuating cycles.

We perceive that the most noticeable feature of these curves is their marked rise during the autumn months. In July, August, and September it is on the way up, reaches the top during October, and in January begins to fall seriously; during March it shows a fresh but smaller rise. Autumn, and in an inconsiderable degree spring, accordingly bring a significant increase in the demand for saved-up capital; at these times saving for the future is particularly necessary.

What is the reason for this increase in the demand for savings during the autumn? It is first and foremost the requirements which have their origin in the harvest season. Credit is required for all the labour and all the expenses involved in the harvesting, handling, warehousing, and distribution of the crops, and it is the demand for this credit which in the first place raises

the rates of interest. Although, if the whole globe is taken into consideration, there is harvesting practically all the year round, it is still the autumn crops of wheat, cotton, and maize in the northern hemisphere which have most weight. In order to enjoy this agricultural produce in the future, that is to say, generally, during

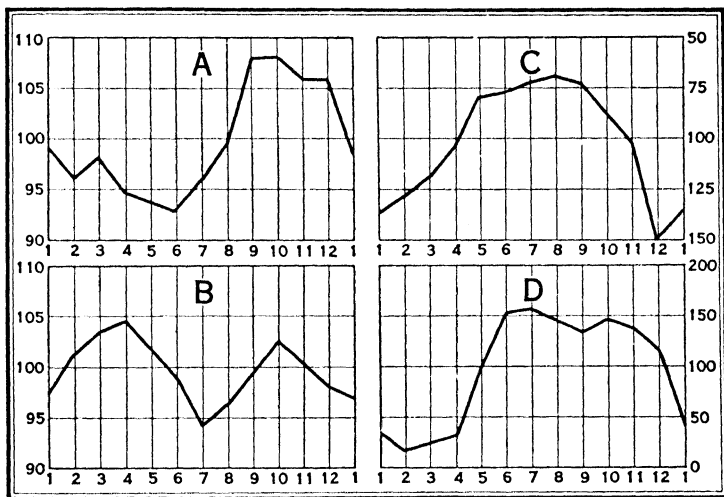


FIG. 3.—SEASONAL WAVES

The deviation of the seasonal fluctuations from the mean.

United States

Sweden

A = Discount rates on commercial bills.

C = Employment within the Trades Unions.

B = Production of pig-iron.

D = Exports of timber and woodwork.

The calculations for the American series are derived from statistics for the years 1903–1913; those for the Swedish are for the years 1920–1930.

the following year of consumption, it is required that people at the present time should supply labour and invest capital, which is saved-up labour.

But it is not only agriculture that makes during the autumn a particularly large demand on the market which deals in fresh buying power. Industry, shipping,

and commerce also have their busy season then. If we look again at the curves in Fig. 3, we find that iron production also has an evident seasonal crest in autumn and another, equally marked, in spring. Although agriculture and the timber trade in general have one economic period which corresponds with the year, certain branches of industry have two periods of a high level of employment. And the same holds good of commerce, which has a busy season during the spring months and another more important during the autumn. Retail trade has, in addition, a third seasonal increase in connection with Christmas.

Employment in a whole country is naturally affected by the labour conditions of all the various branches of industry. In agriculture and also in shipping the summer is the busy, and winter the quiet, time, while most industrial and commercial branches of activity have busy seasons in spring and autumn. When we sum up these influences it is not surprising that we arrive at an employment curve which is shown in Fig. 3. This curve applies to Sweden, but taken as a whole it will serve for all industrial countries in the northern hemisphere, even though the difference between the highest level and the lowest may vary and, in general, be less than in that country.

Most characteristic of this seasonal variation in employment are the following two phenomena: that the non-industrial branches of commerce have to such an extent affected the course of trade that the summer is a period of high employment, and that the demand for accumulated buying power during the autumn occasions a maximum at that time of year. One may say that, looking at it from all points of view, the autumn is the time when the formation of new means of pro-

duction reaches the maximum and when willingness to forgo buying power in favour of provision for future needs is the greatest.

The Import of Seasonal Variations

Before we examine the longer periods in economic life it is worth while to pause and consider the real import of the seasonal waves, for there are many more associations between seasonal and cyclic fluctuations than is generally supposed. If we compare social life in a state in the temperate zone with that in an equatorial country, we are reminded of the all-embracing importance of temperature variations to civilized life. In a country where the cold in winter compels mankind to collect fuel and lay in supplies of the means of existence, the whole economic and the whole cultural development is different from that in a country where the climate is mild and nature bountiful all the year round.

It is therefore not by chance that the formation of new means of production is most prevalent in the temperate zone. Industrial countries are, on the one hand, just those in which the climate is such that saving is necessary and which have, on the other, owing to the conformation of the continents, good means of communication. Economic progress is thus the child of stern necessity; the compulsion to arm itself far ahead against cold, darkness, and niggard nature has created in mankind powers which have made it possible perpetually to increase the distance between our standard of living and that of the cave man.

In a country in which the variations of temperature are great, for example, in the United States, there are

naturally also strongly marked seasonal variations in industrial life. All wage-earning labour in such a country is subject to considerable vicissitudes even in so brief a period as a year. The formation of new means of production, which is the foundation of economic progress, tends in such a country to be stimulated by external circumstances. In another country, Italy for example, the contrast between summer and winter is less violent and the impulse to enterprise with a view to the future is less powerful.

Without anticipating the consideration of the cyclic periods, we may therefore draw the conclusion that in a country having great variations of temperature, and therefore great seasonal variations in industry, the cyclic fluctuations have a tendency to be particularly pronounced. At this point we clearly catch a glimpse of the connection between economic progress and economic crises—a connection to which we shall often have occasion to return.

But the association between seasonal and cyclic variations is not of so simple a nature that one can lay down any generally applicable law. It is not only that different countries are industrialized in different degrees and therefore not directly comparable, but also that the accumulated capital required for the formation of new means of production may be drawn from any quarter. The international nature of the money market thus interferes with the local conditions—and we shall have more to say upon this matter too.

So long as we confine ourselves to the seasonal and cyclic variations of production and employment within a single country, the association is, however, plain enough. Those branches of industry which have marked seasonal variations—such as the building and

iron industries—prove to be also very susceptible to cyclic fluctuations, whereas other branches of industry—for instance, clothing and many of the provision industries—show neither seasonal nor marked cyclic variations.

Seasonal Waves in Good and Bad Times

If we consider the mean figure for each month in a given economic series, we obtain an index of seasonal variations of the kind shown in Fig. 3, page 37. But, as we have already mentioned, we should not take these curves to be anything but what they are, namely, the mean of figures which may show a very great deviation in both directions.

Here, however, we must distinguish between two different things. It might be supposed, to begin with, that the seasonal curve—for instance, any of those shown in Fig. 3—would take on an entirely altered appearance if it were computed for a period other than that which was originally taken as the basis of the calculation. This would show that the *mean* seasonal variation has a tendency to vary. It is, however, the case that most of the important economic series show a surprisingly constant seasonal variation. Thus, if we calculate the index figure for the seasonal fluctuation of interest on loans between 1880 and 1900, this figure differs only slightly from that which we obtain if the period from 1910 to 1930 is used as the basis of calculation. It is unnecessary, therefore, to dwell longer on this point.

But in the second place it may be asked whether *each year* has approximately the same seasonal variation, or whether the deviations from the mean figure

are very great. If we examine the economic statistics we shall find not only that the deviations are very great, but also that they show an association between seasonal waves and cycles which has not yet been sufficiently considered. It appears in fact that the seasonal variations of iron and steel production are very conspicuous during bad times, while during good times they are, so to speak, swallowed up by the cyclic wave. In other words, seasonal demand determines the whole trend of industrial life during depression, when no one dares to trust in the future, whereas seasonal demand becomes of small importance during the prosperity phase, when everyone is counting on a large future demand and a constantly increased formation of new means of production. The very dissimilar aspect of seasonal variations during good and bad times in industry only applies to those economic phenomena which are more or less directly associated with the creation of new capital, that is to say, in the long run, with economic progress.

Though we have up to now more particularly considered only the shortest and certainly the simplest of the periods of economic life, the annual or seasonal variation, it has already become evident that one cannot separate a period and treat it as an unrelated entity. Just as in the economics of equilibrium, in which the moment constitutes the unit, there is a rule which says that all economic factors are mutually dependent, so in the economics of time, in which each economic period constitutes the unit, we may assert that all economic periods are mutually dependent. This association between periods of different length must constantly be born in mind if we are to understand the rhythm of economic life.

CHAPTER IV

CYCLIC WAVES

BREAD AND THE FLOUR MILL; THE MOTOR CAR AND THE
MOTOR-CAR FACTORY; PROVISION FOR TO-DAY'S AND TO-
MORROW'S NEEDS

OF all the vicissitudes of economic life it is the fluctuation between good and bad times which attracts in general the greatest interest. That this is so is due not only to the obviously far-reaching importance of cyclic fluctuations to the whole community, but also to the fact that cycles and crises are regarded as being more obscure than anything else in economic life. We shall try to show, however, that the obscurity to some extent arises from the fact that the study of these phenomena has often proceeded from irrelevant assumptions and, moreover, that all other fluctuations of shorter or longer duration have commonly been ignored.

"The Cause" of the Crisis

When an economic crisis occurs, there is commotion in the Stock Exchanges, unemployment spreads over the world, and everybody asks: "What can be the cause of this crisis?" Behind this surprised interrogation lies the assumption that there is such a state as "normal times" characterized by good or moderate business. If a crisis arrives, it must depend upon a

particular abnormal disturbance which, like a natural catastrophe, upsets all human calculations.

There are, of course, many different reasons for the widespread and persistent prevalence of this view. It is very human to demand for every unexpected occurrence a simple cause which may be supposed to explain it. Civilized man, like the savage, tries to protect himself against the dangers of the outside world by drawing up rules showing the connection between cause and effect. The savage's conception of the connection between natural phenomena and the occurrences in the life of the tribe and the existing prevalent conception of the causes of grave economic, social, and political conditions are, to be sure, very dissimilar. But the difference between the explanation of the savage and the modern popular conception of causation is scarcely greater than the difference between the last-named view and the attitude of contemporary science, especially of natural science, to the problem of causation. Ultimate causes, "primary causes", are withdrawn from our gaze, and what science is concerned to explain is *causal association*, the relation which exists between the important and observable factors. Accordingly it may be asserted that economic crises have no certain cause as their independent and isolated source. An understanding of the crises can only be obtained through a study of all the vital changes in economic life.

But there are yet other reasons why the desire to simplify the problem of the crisis is so widespread. Thus it is easy to understand that memories from earlier stages in the material history of cultivation continue to influence the general conception. Before the rise of industrialism, when agriculture was the

mother industry in the full meaning of the word, economic crises were of a completely different character. If we go right back to the middle ages, as we must, since the sixteenth, seventeenth, and eighteenth centuries may reasonably be regarded as a period of transition, we find a static community in which neither agriculture, craft, nor trade were subject to any great development or change. Crises, in such circumstances, could only be due to unfavourable weather causing failure of the crops or to political conflicts which affected economic life. There is still a tendency to explain the cyclic variations of industry in this simple manner.

Another important reason should be adduced why the problem of cyclic variations and crises is not recognized as a question of vast theoretical and practical scope. This is bound up with the whole position of the original classic political economy. What that principally set out to prove was regularity, equilibrium, and timeless circulation. Phenomena which upset equilibrium were indeed held to be practically important and deplorable, but without theoretical interest. The economics of equilibrium have thus constantly asked: "How, in fact, is a theory of economic cycles possible?" And this question is really justified if only one changes it to: "How is a theory of economic cycles possible if nothing but the timeless economics of equilibrium are employed?"

During the last century, up till the eighteen-eighties, it has been observed that economic crises arose about every tenth year, and, as few economic statistics were available, it is not surprising that interest was confined to the crises, and that the cyclic changes between the crises were ignored. But between then and the

eighteen-nineties the position changed. In the first place the continued far-reaching industrialization of the world had produced an alteration in the aspect of the cycles, and secondly, there were greater facilities for the study of these changes, thanks to the improvement of statistics. *The whole cyclic wave* now became the subject of investigation.

If, for example, the American statistics of economic cycles for the last four decades be studied, it appears that there are quite short waves of about three years' duration as well as longer waves of from seven to ten years, which include the short waves. (See Fig. 2, page 27, and Fig. 10, page 172). It is these cyclic waves that must be studied in their entirety if the crisis is to be capable of explanation, for the crisis is only a link in the general rhythmic movement, even though it be the most important and most interesting link.

We shall not, to begin with, distinguish between the short and the long conjuncture waves or cycles, because, for the most part they can be explained in the same way. We will leave the questions which concern the differences between them until the end of the chapter and pass on directly to the bases of the explanation of cycles in general.

Some Assumptions

Economics is a science of hypotheses and premisses. One must simplify the infinitely many-sided and complex reality by proceeding from certain assumptions, and this in all arguments, both those which are purely abstract and those which are based upon statistical figures. In this way one can observe industrial life from different angles while deliberately ignoring a

large part of the field of vision. Simultaneous occurrences can thus be studied in due order with the intention of combining these one-sided but nevertheless clearly defined pictures into a composite view of the essentials in the progress of events.

But assumptions may be of very different kinds. Classical political economy is a child of the eighteenth century, and it is therefore not surprising that it should have chosen originally those assumptions which, like that century's rules for the drama, adhere to the unities of time, place, and action. The source of economic science, the physiocratic school in France, has, as we have seen, approximated as nearly to these rules as, all things considered, was possible. In the continued development of political economy by the English fathers of learning, a part of these classical French hypotheses was abandoned, but the form and trend of thought persisted till our own days. The unity of action was dropped by Adam Smith when he abandoned the physiocrats' rule that agriculture is the only productive, and therefore the only essential, branch of economic activity. The unity of place was very definitely passed over by Ricardo when he developed his theory of international trade.

But the unity of time persisted. Certainly the faithful adherents of the classical school tried to strain the rules of the economics of equilibrium by discussing what would happen "in the long run". They were thus able to regard as coincident the moment and the prospects of eternity in the economic process, but declined to express an opinion as to what happened between these extreme limits. An explanation of economic cycles based upon such a hypothesis proceeds from a contradiction in terms and cannot succeed. The hypo-

theses which we employ must help us to a view of all the associated essentials; they are not to be so conditioned as wholly or in part to exclude the very changes which we would study.

In this investigation we cannot be in any sense bound by the classic rules of the unities of time, space, and action. Cycles are associated in the most intimate manner with the fact that the processes of production demand time, and that all significant economic processes require time for their completion. Nor can we proceed from the assumption that the economic community is homogeneous, but rather the walls which divide savers from credit intermediaries, givers of credit from receivers of credit, as well as those which separate the different branches of industry and enterprise, must be taken into account. Finally, we must allow for the fact that the range of cyclic fluctuations is dependent upon the stage of development in different countries and upon the mutual relations of these countries.

In order to simplify our task we shall therefore adopt some assumptions which involve nothing more than the examination of the problem from various sides in turn. In this chapter we shall accordingly *firstly* assume that we need only deal with cyclic periods and that we need not regard the influence upon the cycles of longer and shorter economic periods—an influence which is exercised chiefly in the psychological sphere. *Secondly*, we shall assume that we have only to do with an entirely industrialized community and that the harvest variations have no influence upon the cycles. *Thirdly*, we shall not here touch upon the purely “monetary” side of the cyclic fluctuations, that is to say, those associations which are exclusively bound up with the nature

of the monetary system. And *fourthly*, it is a close community that we are now studying, and influences from other countries are therefore left out.

Having tried to explain the cyclic movement subject to these four simplifying assumptions, we shall conclude our survey of the various periods in economic life with an examination of secular waves. After that we shall drop these four assumptions one after another. In Chapters VI., VII., VIII., and IX., upon the psychology of economic periods, upon agriculture and industry, upon the nature of credit, and upon international interdependence, we shall complete that part of the picture which we are now neglecting.

Interest and Time

Passing from the one-year seasonal period as the simplest and most natural of all the economic periods, we come next in order to the cyclic wave. The most characteristic feature of the cyclic wave is, regarded from this standpoint, that it embraces an economic period which is *longer* than a year. The circuit followed by the cyclic wave is thus of another kind than that which works itself out in the confined period of the year.

We remember that it was characteristic of seasonal waves that we were unable during this short period to observe any changes in the general profits of capital, in real interest, and therefore, that the loan rate governed the situation. When we come to the cyclic wave it is, on the contrary, most characteristic of this period that *loan rate and real interest seldom tally*. The estimate of future profit and the actual profit on capital hardly ever prove alike, because man lacks the capacity

to see into the future and accurately to adjust the formation of new means of production and their distribution in such a way that to-day's guesses shall correspond with to-morrow's actual demand. This circumstance, of which we became aware at the beginning of the first chapter, when the "hour-glass" was under discussion, may be said to be the foundation-stone of the whole cycle phenomenon.

The very first answer to the question, "Why are there good and bad times?" is therefore a reference to mankind's defective capacity for making economic progress advance upon an even front. We shall soon see how a too great and unequal formation of new means of production leads to a crisis, but we must first ascertain what are the methods by which the formation of new means of production is increased. For a rise in investment which indicates increased demand by all *means of production* is inseparably connected with good times, with the boom.

How, then, can the increase in investment, which is the foundation of economic progress and at the same time the ultimate cause of crises, be induced? What forces can prevail on people to abandon much of their effort for the provision for to-day's needs—for immediate consumption—so as instead to take thought for the morrow?

This question first demands an examination of that part of investment which goes to the replacement of exhausted capital. This part does not contribute to progress in the true sense, but one should not suppose for that reason that, in economic life, there is an actual distinction between investment for new objects and for replacement. Industrial life always looks ahead, and that which has been lacks significance; whether

capital be applied to the replacement of outworn buildings has no practical bearing on the money market, because what primarily carries weight in connection with every investment is the expected return. From this point of view there is *only* the creation of new capital, and it is not for us, during industrial progress, to worry about the conditions in a stagnant, mediaeval community.

Next in importance for elucidation is the question in what measure the will to save alters during good and bad times, for the capacity to save is the source of investment. Loan interest is the price paid for purchasing power, for capital, and it should be self-evident that the supply of saved-up purchasing power would be particularly considerable when the rate of interest is high. People would thus save most during booms which are distinguished by high rates of interest and least during depressions with their low rates of interest. But the study of banking statistics scarcely leads us to this result. It appears that during the cyclic period it is not the supply of savings which governs the money market but rather the demand for savings for the formation of new means of production which controls the situation. The initiative in cyclic fluctuations thus lies not with the savers but with the entrepreneurs. The rising phase of the cycle and economic progress are thus far more dependent upon the active intervention of individual and State enterprise and of the credit intermediaries than upon the passive decision of the savers not to consume—*i.e.* to save. But without this “passive” contribution all active initiative would be doomed to break down at the start.

The Aim of Investment

This having been elucidated, it is time to enquire why the "active" members of the community, and especially the promoters of industrial enterprise, increase the formation of new means of production more at these times than at others. As a general rule we may say that this increased investment implies increased confidence in the future, that is to say, increased confidence in the rising of real interest. But what, then, is it that induces the entrepreneurs to draw the bow more lustily for especially long shots into the future? We can differentiate between three different cases which apply to separate types of community or different phases.

In the first place, it is obvious that the State or the authorities in a centralized community can impose such a regulation of production that the day's consumption is, to the greatest possible extent, laid aside in the interest of building up the apparatus of production. This is the gist of the Soviet Republic's five-year plan. Labour is concentrated on the development of iron mines, coal mines, and oil fields, on the construction of power stations, iron works, and many different engineering plants. On the other hand, the industries which are engaged in the provision of articles for consumption get no proportionally increased allotment of productive power. The food, clothing, furniture, and house-building trades are kept within narrow bounds, for the day's needs beyond the minimum of existence cannot be considered when it is a question of converting a mediaeval agricultural State into a great industrial power. Yes, and they go still further. In spite of hunger and overcrowded dwellings within the country, they are exporting corn and timber in order to obtain foreign

exchange with which to purchase abroad the machinery necessary for carrying on their industrialization. Russia is thus engaged in carrying out an experiment which strikingly illuminates the real import of the rising phase of the cycle. This phase is a time of expectation, and it is by no means certain that good times, so called, are good times for all the members of the community. But never has the rising tide demanded such privations as now in Russia. This is owing to the fact that, during the upward swing of a cycle in an industrial community of the Western type, current consumption, *relatively* regarded—as in relation to the rising national income—is certainly reduced, but that only in the present Russian centrally controlled trading community has it also been attempted *absolutely* to reduce current consumption in the interest of future consumption.

Secondly, in a community in which financial organization and relatively free competition prevail, there is a method of increasing investment. This method is based upon a lowering of the value of money, that is to say, a general advance in prices. We defer the discussion of the influence of the financial system upon cyclic development to Chapter VIII., but must here touch upon the significance of change in the value of money. If confidence in the future profit-earning capacity of capital begins to increase, the entrepreneurs demand more credit, and the credit intermediaries are willing to supply it. By this means more purchasing power comes into play, for the entrepreneurs employ the credit to pay an increased staff of workmen and to purchase raw materials and other necessities. But this increase in the amount of credit is not immediately followed by a corresponding increase in the available amount of goods. In fact, it takes time before

the increase of production makes itself felt in the market, and it takes a relatively long time before new factories are ready to begin production. In the meanwhile the increased amount of money will turn over a less rapidly increased amount of goods, and the consequence is a general rise in prices. The rise in prices is accelerated when the entrepreneurs take a generally more optimistic view of the future growth of profits—of real interest rate, for they will then require more and more credit so as to employ still more workmen and buy still more raw materials. But if the raw materials rise in price, this induces a more pronounced desire to buy on the part of the wholesaler and the entrepreneur; speculation in future rising of prices thus begins, and stocks are increased with a view thereby to increasing profits. What a fall in the value of money—that is to say, a general rise of prices in the market—signifies as a lever for the increase of enterprise is best perceived if we recollect the conditions during the Great War. The rise in prices which then took place had its source *partly* in the shortage of goods in consequence of the world-wide economic disorganization, *partly* in the financing of the cost of the war and of domestic requirements with floods of irredeemable paper money. Although the special economic circumstances of the war years colour the cyclic movement of that time, it may be asserted that they give a true though greatly exaggerated picture of the significance of the rising of prices in a more normal boom.

But the entrepreneurs may also in a *third way* be stimulated to increased investment, *i.e.* by rationalization of the methods of production. What is it that lies behind the significance of a general rise in prices as the motive force in trade recovery unless it be the entre-

preneurs' opinion that profits are increasing? If the wage level does not seriously advance and if the stock of raw materials bought at a low price prevents a general rise in the costs of production, it is evident that the rise of prices and a constantly increased turnover involve the promise of a great increase in profits. This in its turn calls forth new enterprise. But a rise in the profits of enterprise can be attained not only by the heightening of selling prices; the same result can also be arrived at, without changing the price level, by reducing the costs of production. This is the purport of the rationalization which has been very much to the fore in recent years. By a much stricter control of the amount of goods placed on the market, production was regulated during the boom of 1925-1929; the efforts of the management of enterprise have tended not to an increase of the selling price but to a reduction of actual costs by the mechanization of manufacturing processes. This involves an accelerated formation of new means of production, for the machine, *i.e.* real capital, has to a greatly increased extent taken the place of the workman. One may thus say that, just as the general rise in the level of prices leads to increased investment and a boom, so rationalization involves accelerated investment which calls forth a *further* accelerated investment and with it a boom.

Cyclic advance, that is to say, increased formation of new means of production, can thus be called forth by *decree* of the management of production as to the application of investment, while consumption is kept down at the lowest possible level. This was the gist of the slave labour of antiquity which produced aqueducts and roads that are still fit for use, and it is also in a certain degree that of the Russian five-year plan.

Cyclic advance can, at a suitable time, be brought about by a general *raising of the price level* of goods, to which end the entrepreneurs, the credit intermediaries, and the State can co-operate in various ways. Cyclic advance can, finally, be produced by the reduction of actual costs through the *rationalization* of manufacturing and selling methods. In all three cases, it is the relation between the profits of capital and future prospects, between interest on capital and time, which stands at the focal point of the question.

The Unequal Distribution of Investment

The difference in attitude to the problem of economic cycles between the economics of equilibrium and the economics of time appears most obviously in the two following propositions: "During the time-demanding process of production, the distribution of investment is unequal", and "the community is not a homogeneous organism". These two propositions indicate the essential, fundamental causes of the genesis of cyclic fluctuations, but the economics of equilibrium proceed from assumptions which repudiate them. To argue with universal economic equilibrium as the framework of one's reasoning is to say in fact that time plays no part and that the community is homogeneous.

What, then, is the significance, in determining the evolution of economic crisis, of the fact that the processes of production require time? Between seed-time and harvest, between the date when the manufacturing of the motor car is put in hand and that when it comes into the market, a space of time elapses during which many changes occur in the relation between supply, demand, and price. This is true in an even greater

degree of the longer period which elapses between the beginning of constructional work on new means of production and its completion. That the time which, on the average, is consumed in building new motor-car factories, new rolling mills, new dockyards, and new buildings of every possible kind has so great a significance is due to the collective and *simultaneous* cyclic movements of the various branches of industry.

Because the entrepreneurs simultaneously take a more confident view of the future and simultaneously increase output, the various production curves move in harmony with one another. From the moment when production is increased and the upward cyclic movement sets in, until the revulsion downwards, a phase supervenes which, more or less generally throughout the whole of industrial life, is characterized by rising production and rising turnover. We shall return, before concluding this chapter, to the effect on the cyclic wave's extent in time of this production period; at the moment we are only concerned to examine the general economic bearing of this phase.

The period between the beginning of the increase of production and the crisis is a time of expectation during which the prospects of future profit—particularly in certain industries—are placed ever higher and higher. An examination of the history of economic cycles shows that during each period of expectation, each boom, there have always been a few branches of industry which especially aroused interest and therefore were developed to an enormously greater extent than the rest.

Many of the booms during the nineteenth century thus took colour from the intensive railway construction which absorbed the bulk of the savings. The

rationalization of steel manufacture by new methods of production lies behind other cyclic upward movements, while the vigorous development of the electrical industry during the eighteen-nineties sets its stamp on the international crisis at the turn of the century. The crises which occurred between the beginning of the twentieth century and the outbreak of the Great War are particularly characterized by a rapid increase of building activity, while the most recent boom was noticeably influenced by the growth of the motor-car industry.

That sometimes one, sometimes another industry steps in this manner into the foreground during prosperity indicates that an unequal, a *disproportionate* development of new means of production is the rule. It is this condition which is illustrated in the left-hand diagram of Fig. 4. At the end of the depression—year 1—it is assumed that equilibrium prevails, in that the scope of the various branches of industry more or less satisfies the demand, and that no great provision of new means of production is in progress which can *further* upset the proportional distribution. But after a year of the rising conjuncture, certain branches of industry, motor cars, for example, have shot up past the rest, and after another year the difference is still more pronounced. For by the time prosperity has continued for so long, new factories have reached completion; when they add their output to the already greatly increased production of the old factories, it is possible that the profit-earning capacity of the industry falls, and this occasions a general lessening of confidence in the possibilities of profit in the future. The time is thus ripe for a crisis when important industries show themselves, as a result of new undertakings and greatly increased

production, to be less profitable than had been expected.

The following depression involves a "levelling", a planing off, of the over-developed industries' tall columns. After a year of depression the unprofitable undertakings have been closed down and the losses have been written off, so that it has been possible to attain a new proportionate distribution of productive forces. In this connection it is further to be observed

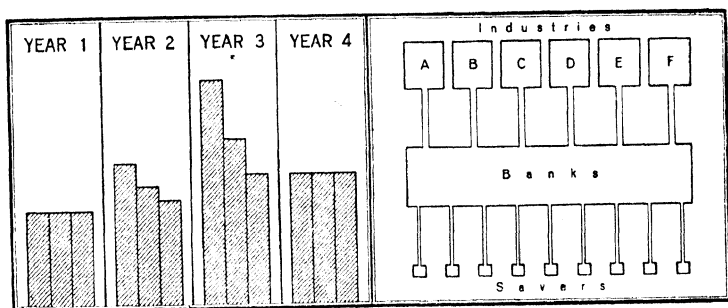


FIG. 4.—INVESTMENT AND CREDIT

Left-hand diagram.—The columns, in order from left to right, indicate the motor-car industry, the building industry, the food industry.

Right-hand diagram.—The transference of accumulated purchasing power from the savers to the banks and from the banks to the several industries.

that certain industries, for example, the motor-car industry, in the present century do on the average increase their proportion of production all the time. Even after a depression and its retrenchments, growing industries will thus play a larger part than during the previous depression with its equal distribution. The columns for the first and fourth year in our diagram do not take count of this circumstance; they only show that the capacity for production is increased on the whole, but do not indicate the so-called *structural*

changes which cause certain branches of industry to take, *on the average*, rising or falling shares in the total figure of production, irrespective of good and bad times.

The Heterogeneous Nature of the Community

Though the importance of time must be counted as the cause of the disturbances in economic equilibrium, it may be supposed that these disturbances would be less violent if the economic community could be regarded as an indivisible mechanism working without friction. For the balance-disturbing factors would then soon become perceptible throughout the whole social edifice, and the delay, which in course of time inevitably leads to new and aggravated derangement, would be avoided.

But no such homogeneity exists in the life of the community. On the contrary, it is characteristic that different groups act from different motives, and that many negotiations occupying time are required before these motives are brought temporarily into harmony with one another. We shall here only touch upon this consideration to the extent of elucidating the association between the saver, the credit intermediary, and the entrepreneur which is illustrated in the right-hand diagram of Fig. 4 (page 59).

At the beginning of the upward movement in the cycle the savers are willing to relinquish a certain part of their income for the formation of new means of production, and it is the function of the credit intermediaries to see to it that this is done. While the savers act each for himself, there is a unitary money market with *one* quoted price for purchasing power, the rate of interest on loans. In conformity with this quotation,

the credit intermediaries offer the savings to the entrepreneurs, who invest them for different objects. Whereas the money market is unitary, industrial life is divided into different branches which are not in direct contact with each other. The saver, the credit intermediary, and the entrepreneur are thus only indirectly in association with one another. The channels connecting the different compartments of industrial life are clearly of varying length and varying width.

What, then, is the significance for the development of economic crises of this condition of industrial life? Let us assume that a certain branch of industry, A in our diagram (page 59), for instance, the building industry, is very rapidly and substantially developed during the upward swing of a cycle. Certain signs of over-production then begin to appear in the housing market, and building enterprise, which is carried on as a speculation, finds neither buyers nor tenants. Consequently, the security of credit in the building trade is impaired, and the banks begin to hesitate about advances in that quarter. But the banks' more rigorous requirements as to loans to the building industry cannot in the long run be localized. Even if no sign of diminishing profit has been observed in industries B, C, D, etc., the credit intermediaries begin to judge the situation in a different manner, and this finds expression in the raising of the rate of interest on loans. In the end there is only *one* price, since purchasing power is not tied to a particular purpose. The impaired outlook in an important industry and the consequent contraction of credit must therefore take effect upon industry as a whole, and this chiefly because the money market is unitary, even though the branches of industry be separate.

The raising of the rate of interest involves a general increase in the costs of production, inasmuch as credit is required for new investment in all departments. It follows from this that profits in another branch of industry, B, say the machine industry, begin to fall, and the credit intermediaries impose a new raising of the rate of interest. So they proceed, the depreciation of profit-earning capacity and the increase in the cost of credit, until the crisis is reached. It is the association between the interest on capital and the interest on loans which lies behind this whole process, but it is appreciably influenced by the circumstance that the economic community is not homogeneous.

From Depression to Crisis

These preliminaries being granted, the time has come to examine the characteristic course of a conjuncture wave or "cycle". We shall then consider those groups in the community which we have already mentioned, namely, the savers (who are at the same time consumers), the credit intermediaries, and the entrepreneurs, but will add to these a fourth group, the wage-earners in industrial life. It is the relation between these four groups that best elucidates our survey of the economic cycle.

If we assume that we find ourselves at the end of a depression, when industrial life has been balanced and almost corresponds with the position at year 2 in Fig. 4 (page 59), the following phenomena are characteristic of the situation. Production and employment are greatly restricted, and the less profitable undertakings have gone into liquidation, world stocks of staple commodities are still high but have begun to

diminish, the costs of production are lower than before the crisis and saved-up capital is on the increase at the banks, without having yet occasioned any expansion in the formation of new means of production.

This position clearly supplies all the conditions for increased enterprise, for the rate of loan interest and other costs of production on the whole admit of a relatively high manufacturing profit, and the credit intermediaries are in a position to transfer the requisite purchasing power. As we have already pointed out in the last chapter, it is, as a rule, the autumn seasonal requirements which instigate an increased demand for credit, and thereby set the upward cyclic swing in motion.

In order to follow what happens during a rising tide, let us suppose that we are observing the total income stream in a country. By the income stream we mean the actual value of everything that is produced, which is the equivalent of all that is implied in the conception of national income. The income stream also corresponds with the total quantity of available purchasing power, and the height of the stream may be described as a convenient measure of the extent of purchasing power at any moment.

The characteristics of the upward movement in the cycle are—as has many times been emphasized—that the formation of new means of production is vigorously extended, and this involves a relative restriction of consumption. We may illustrate this process by the following table:

	Year 1	Year 2	Year 3
Total income stream.	10	12	15
Of which applied to consumption	8	9	9
Of which applied to investment .	2	3	6

At the beginning of the upward movement the demand for articles of consumption will rise because a large increase in employment then takes place. But production soon uses up the capacity of the factories, and the advance in wage level is counterbalanced by increased saving, and thus it comes about that the demand for articles of consumption no longer increases. In its place the demand for buying power, for the formation of new means of production, rises ever more and more; by reason of the extension of enterprise this need for accumulated capital undergoes an *accelerated* growth. It is the actual rise in profit, and even more the rise which is expected on the ground of the general improvement in prices, or in consequence of the rationalization of production, which lies behind the constantly increased activity of enterprise.

The part of the income stream which is diverted to the provision of the means of production is, according to our table, 20 per cent in the first year, but fully 40 per cent in the third. For this development to continue it is necessary for the industrial entrepreneurs to shut their eyes to the risks of over-production, which, indeed, increase in proportion to the distance one travels from the original position of equilibrium. It is further necessary that the producers of articles for consumption shall put into stock more and more of their products in expectation of a future increase in consumption. *In the long run* increased formation of the means of production always signifies increased capacity for consumption, but during the time which is consumed in the creation of the new real capital, consumption cannot increase to any great extent because *it is impossible at one and the same time to save more and to consume more*. The difference between long-time and

short-time fluctuations must never be forgotten if we would understand the causes of the economic crises. The storage of wheat and cotton, coffee and sugar, that took place during the years which preceded the international crisis of 1929 was due to just this difference. Side by side with the rationalization of agriculture, which rapidly increased the output of the articles of consumption, a comprehensive industrial increase in the means of production was in progress which constantly demanded more and more saved-up capital. This increased investment must in the end lead to a general improvement of the standard of living, owing to which the stocks of raw materials would come into demand. But the antecedent condition of this result was that people should be willing and able to wait for this juncture.

But what makes it possible for people to wait? Why, the availability of accumulated buying power, of saved-up capital. *This availability is not a fixed quantity, but is dependent upon how the prospects of the future are judged.* If the givers of credit and the credit intermediaries count upon a steady increase in profit on invested capital, the availability of saved-up capital does not disappear even if its price rises. But if doubt begins to arise as to future profit-earning capacity, then the whole substratum of rising values is demolished.

It is this mistrust of the continued advance of profit-earning capacity which is the first forerunner of the crisis, and the mistrust is based upon the fact that a certain industry, which has developed with a special vigour, shows signs of over-production, that is to say, a production disproportionately expanded in relation to other industries. The result of this mistrust in the

future is expressed in the diminishing value of the capital invested in the branch of industry in question. Here we have the explanation of the fact that it is the Stock Exchange which always gives the first signal for a crisis.

When this process has been set in motion, credit rapidly becomes dear, since the willingness to offer purchasing power diminishes in the same measure in which the conception of the economic risk increases. Only the demand for loan capital continues to rise, and this especially as more and more branches of industry show falling profits as a result of the rising cost of production.

This development is speedily pushed to its apex and the crisis is an accomplished fact. The entrepreneurs wake up to the fact that a disproportionately great production prevails in many branches of industry, and that the huge unsold stocks discount all too greatly the possibilities of the future. Simultaneously the rise in the rate of wages and the demand for yet higher wages tend further to deter the producers. The credit intermediaries are unwilling to tie themselves up with new loans to enterprises whose outlook is now judged pessimistically. The savers will wait no longer for the promise of future increases of profit. In a word, all the balance-disturbing momentum, which during the boom was treated by tacit understanding as a trifle, is now only too evident. All the forces which lately were directed to providing for the needs of the future are withdrawn; the universal cry now is for short-term loans, and the future appears more prolific in losses than in profits. The boom is over for this time.

From Crisis to Depression

The falling tide is the liquidation, which has been prevented from taking effect during prosperity, of all the equilibrium-disturbing elements of economic life. The entrepreneur in many branches of industry talks about over-production and restricts his activities, the accumulated raw materials are offered and find no buyer, so that the price falls, the banks pursue a very cautious credit policy, and traders try to reduce their stock of goods to the least possible so as to avoid loss due to a fall in value. All this leads to a liquidation and reorganization, which thus gradually produce a new state of equilibrium in the distribution of the income stream, as in year 1 in our table on page 63. But the "planing off" of the disproportionately developed branches of activity (cf. Fig. 4, page 59) does not happen in accordance with the law of least expenditure. Just as the rising tide led to general excesses in the form of the inordinate increase in new means of production, so does the falling tide bring about excesses in the opposite direction. Owing to mistrust of the future, even well-justified investments are delayed, and even short-term purchases of raw material are limited to the least possible amount.

The depression of 1930-1931 has, moreover, demonstrated that hard times may be greatly prolonged by failure to adapt the various factors of production to the trend of affairs. This lack of adaptability arises from the marked monopolistic tendency of our times, of which we may adduce three phases. There is undeniably a kind of political monopoly bound up with the problem of reparations and inter-allied debts; international movements of capital and commodities

have been gravely hampered by political struggles for monopoly, and this has greatly aggravated the present depression. Secondly, there is a form of credit monopoly. By way of re-insurance against the large political risks underlying all forms of investment, the leading commercial banks in the industrial world have combined in resolutely refusing to write down their claims in respect of their large politically tinged investments. This has had the effect of drying up the source of all entrepreneur credit, that is to say, of long-term credit, while gold and short-term credit are hoarded in "safe" centres to be available in case losses on the politically tinged investments should eventually prove inevitable. Such a policy must shut the door upon every form of revival of enterprise. Finally, there is a labour monopoly in that the wage policy of the trade unions has prevented the adjustment of the cost of production to the falling price level, and thus reduced the possibility of profitable production.

The duration of the rising part of the cycle was, as we remember, largely dependent on the average time occupied in the establishment of new means of production of all kinds. The falling tide, too, is normally dependent upon a time factor, but this rather of a purely psychological nature. In principle the whole process of liquidation after a crisis could be carried through in a single day, if one quite simply determined to close down certain undertakings, write off the losses, reduce wages and prices, and realize all stocks by auction. Apart from the dislocation which would arise in distribution, and consequently in enterprise, through so radical a proceeding, there is another reason which puts obstacles in the way. At the time of the crisis it is not actually known in what manner nor to what lengths liquidation

will have to be pursued in order to lay the foundation of new equilibrium and new advance. Just as little as the limits of economic progress are known during a rising tide, so little is it known during a falling tide, at what point it will strike bottom. That one can nevertheless fix a certain normal period for depressions is due to the fact that after a certain time sufficient confidence in the future arises for both credit giver and entrepreneur to venture to build on the insecure ground.

Just as the most characteristic feature of a crisis was the tendency to fall on the part of interest or return on capital, and a rapid rise in the rate of interest on loans, so it is distinctive of the beginning of an upward cyclic movement that interest on loans is at a low level, while the return on capital shows promise of increasing. The circuit is complete.

Short and Long Cyclic Waves

Hitherto we have reasoned as though there were only one single kind of cyclic wave, but that supposition must now be abandoned. If we examine Fig. 2 (page 27) concerning the variations of loan interest in the United States, we shall find that during the four last decades, excluding the war years, there occurred ten cyclic waves, of which five were of three years, three of four years, and two of two years. These waves are the short cycles which occur with peculiar distinctness in American industrial life.

But if we turn to the statistics of employment and production, we shall find that there are also longer waves which almost bear out the nineteenth-century conception of the interval between crises. These longer waves are, in fact, from seven to ten years in length,

and each includes from two to three of the short cycles. Fig. 10 (page 172) gives a clear picture of this circumstance in the long cycle of 1921-1931.

How, then, shall we explain the long periods if the interpretation we have just given is taken to serve for the short cycles? The required explanation is not very difficult to find, for what could these long waves signify if not a *longer* period of over-capitalization? The depression periods of the short cycles were not able to liquidate the balance-disturbing elements in industrial life which had arisen during the previous short booms, and only the second or third crisis in order occasions a general liquidation.

If the extent of the rising period of the short cycle is essentially dependent on the average length of time which is required for the formation of new means of production, it may be supposed that the long waves culminate in a general crisis at such time as more extensive long-term investments have induced a sudden and one-sided increase in the capacity of certain industries with concomitant decline in profit-earning power.

The cyclic development of the nineteen-twenties in the United States provides a good example of this condition (see Fig. 10, page 172). After a deep depression which reached the bottom in 1921, a short cycle followed which reached the top in 1923 and the bottom in 1924. This was followed by another short cycle which came to an end at the close of 1927, and finally a third short cycle which culminated in the general crisis of 1929. This crisis called forth during 1930 and 1931 in the first place a liquidation of the disproportionately large formation of new means of production which had grown up during the last short cycle, but it is

obvious that the liquidation dealt also retrospectively with economic conditions whose foundations had already been laid during the two earlier short cycles. In this case one might even speak of a further liquidation of the economic consequences of the Great War and thus term the last crisis a second post-war crisis.

We have thus concluded our first glance at the cyclic wave problem and have emphasized its fundamental conditions. If to the simple question, Why do cyclic waves and crises exist; why cannot industrial life move steadily forward? we are to give an equally simple answer, it must be this: There are cyclic waves and crises because mankind has not the capacity for seeing into the future and so regulating the whole development beforehand that it shall proceed in perfect proportion. After a time of new creation must follow a time of consolidation and reorganization. Crises have the same significance for the community as the rings that mark its years of growth for the tree; they indicate that the organism has passed through a stage of development which has accidentally been interrupted, but which soon is followed by a new.

CHAPTER V

SECULAR WAVES

CYCLIC WAVES OF GREATER SPAN

IT is not only economic life which exhibits wave-like movements; the trend of sociological doctrine has a tendency to advance and recede with periodic regularity. This has, in fact, been the case in the interpretation of long waves, of what are called secular fluctuations in the evolution of the community.

We may remember that Ricardo was the first economic theorist to conceive a variation of this nature in wage level, the standard of living and population, but this variation was so very slightly connected with the actual fluctuations in time that it could easily be represented as a general tendency towards a timeless equilibrium. This was soon done, and only Jevons was able occasionally to come upon the track of the actual secular fluctuations and so to break away from the very consistently developed but very one-sided classical line of thought.

When the economics of equilibrium were forced to adopt an attitude to the cycle problem, it was represented as a crisis problem—for by this means it became possible to concentrate all the variations in a single point of time, in an instant. But when, some decades later, economists began to turn to the study of

the whole cyclic process they began to undermine in earnest the whole intellectual structure of the equilibrium idea. At the present time, a constantly increasing interest is displayed in the economic periods of different length and their mutual relation, and the economics of time are thus more and more taking the place of the economics of equilibrium. If the cyclic waves still retain many unsolved enigmas, this is true in an even higher degree of the waves of long duration; here we have only reached the threshold of the outer court of knowledge. This is due, first of all, to the fact that the period under observation is altogether too short for the possibility of drawing any sure conclusions. But how often is science, even exact science, placed under the necessity of advancing hypotheses in the place of laws.

A Definition

We may remember that we defined the seasonal wave as a period of just a year's duration. During this brief space the changes in real interest have not time to take effect, but interest on loans, the estimate of the present and the future profit on capital, is of decisive significance. Again, we have defined cyclic waves as periods of between one and ten years' duration; it is characteristic of these periods that interest on capital and loan interest seldom or never tally, but that the estimate of the profit on capital sometimes under-values, sometimes over-values the actual profit.

We now define secular waves as periods of more than ten years' duration, and point out that the characteristic of these periods is a third relation between loan interest rate and real interest rate. During secular fluctuations it is in fact characteristic that loan interest

and interest on capital do more or less tally. *In the long run*, that is, the estimate of the profit on capital will adjust itself to the actual profit which by that time is really approximately known, and in this we have a reason why the classic economics of equilibrium not only define the momentary position, but in a certain measure take cognizance of the secular variations.

In contrast with the two periods already dealt with, it is, however, to be remarked that our definition of the secular waves has no line of delimitation at the top; we have only said that secular waves are such periods as have a duration of *at least* ten years. The reason of this is simply that we do not know and can hardly imagine a maximum. In actual fact our scanty access to statistical information enables us to surmise secular waves of various lengths—some of them may be regarded as “historical” phases extending over centuries. Before briefly discussing those fluctuations which dimly emerge from economic history, we had better cast a glance at such statistical material as is at present available for their closer investigation.

Secular Waves in Statistics

The secular fluctuations of the kind which we are now discussing have long been taken into account from one standpoint, that of the average rise and fall in the price of goods. As is shown by Fig. 5, one may observe in the movements of the level of the price of goods, both American and English, a period of from fifty to sixty years in length, with the crests of the waves in about 1810, 1870, and 1920, and their troughs about 1790, 1850, and 1895. We should, according to this disposition, have been for the last ten years on the way

to a new "secular" bottom point of price level, and the movement of trade hitherto existing has supported such an assumption.

Deferring the discussion of the reason for these phenomena, we turn to the question whether it be possible to observe the same period formation in other spheres also. Now it appears that, first of all in the

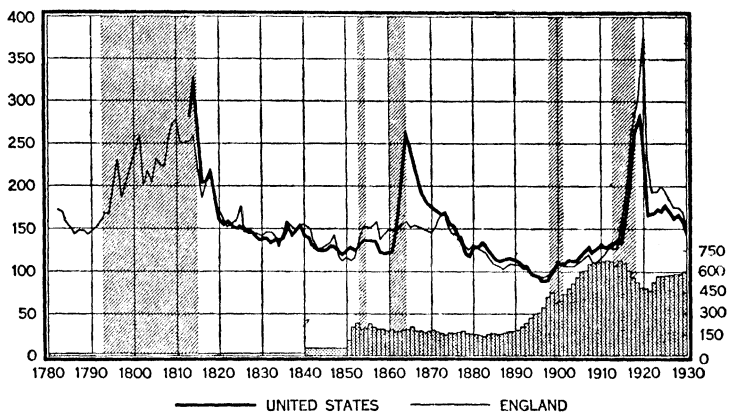


FIG. 5.—SECULAR WAVES OF THE PRICE LEVEL

The curves indicate the movements of the wholesale price level in America and England in so far as such a comparison is possible for so long a period, in view of the changes in the use and nature of the goods. Scale to the left.

The columns denote the world's total gold production in tons. Scale to the right.

The shaded surfaces indicate the war periods affecting the United States and England.

question of loan interest, one may detect a secular variation which very nearly coincides with the secular waves of price level. Fig. 3 (page 37) plainly enough illustrates this circumstance. Rising price level and rising interest, falling price level and falling interest, are not only associated in the cyclic but also in the secular wave. Indeed one may go so far as to say that the concurrence is more distinct during the latter

period, for in the cyclic wave the price level usually begins to rise noticeably earlier and also begins to fall before the interest level moves downward.

In the next place it has been possible to show that the wage level also—that is to say, the level of nominal or cash wages—changes, in the long run, in harmony with the movements of price level. Wages in the English cotton industry and in English agriculture have crests in 1805, 1875, and 1920, and troughs in 1850 and shortly before 1890. Finally an evident coincidence with the price curve is found in the total value of foreign trade with various countries. Interest and price level come together in a relation with which we shall become acquainted in Chapter VIII. The value of money enters as an important factor into the question of wage level, and the value of foreign trade, and their coincidence may therefore be described as natural.

Such is not, however, the case in what concerns production, but even in that sphere it has been possible, where the statistics go far enough back, to show the same periodicity as for the price level. In this connection it is necessary to take into consideration the uninterrupted growth of production arising from the process of industrialization, but, leaving out this constantly operative factor, it has been possible, for coal and iron production as well as for machinery, to “re-construct” secular waves which are quite in accord with the fifty- to sixty-year periods of price level. In order to understand how very complex the question of the secular fluctuations of production and consumption really is, we must, however, pause for a moment at this point before we go on to the causal association which lies behind this remarkable secular wave.

Structure and Conjecture

While discussing the cyclic waves we found that, even after the depression has restored equilibrium in investment and production, certain branches of industry appear to employ a far larger share of productive forces than they had used during the previous state of equilibrium, that is to say, during the previous depression. Thus the American production of motor cars is of very much greater relative importance in 1931 than in 1921. This is in no way connected with the unevenly developed increase of production which characterizes the prosperity phase of the cycle; it is, on the contrary, a secular phenomenon which here asserts itself right through the wave path of the cycle.

This secular phenomenon is commonly called a structural change in industrial life. The question then is whether this *structural* change attaches to the secular wave, whether like the production of many important commodities it is limited to a fifty- or sixty-year period. No precise answer to this question can be given, for if the statistics of production and consumption are singularly scanty and not very trustworthy, this applies in an even higher degree to information concerning structural changes.

It is thus an often insoluble problem to decide at what time habits of consumption have been changed, at what speed these changes take effect and what is their influence upon different branches of industry. One can certainly calculate the consumption per head of wheat, sugar, coffee, wine, and many other articles, but one does not in this way find out to what extent other groups of commodities have taken their place. One has only to think of the progressive use of artificial

silk to perceive to what very complex changes such structural alterations lead. Artificial silk has certainly ousted cotton and woollen goods in many quarters, but at the same time the demand for textiles generally has risen with the development of the standard of living, and cotton and wool have come into increased industrial use.

This structural alteration of production and consumption has an especial significance in the calculation of price index numbers extending over a long series of years, as in Fig. 5 (page 75). These index figures should indeed represent the average price variation for a whole series of commodities which have been "weighed" in relation to their relative importance in industrial life. To be able to compare, for example, the price level of 1930 with that of 1870, the *same* turnover must form the basis of price determination on both occasions. But the same commodities have a quite different importance on the two occasions, and many new commodities which have been added must be eliminated. One is here faced by the same dilemma as when one wishes to compare the statement of expenses of a journey on the Continent in 1870 with that of one in 1930. It is not only the value of money which has changed, but the whole texture of life has undergone a radical transformation. How this inward qualitative transformation proceeds it is not easy to determine, still less to state in figures.

It is, however, certain that in some regions the structural changes have a tendency to coincide with the secular waves. The annual increase in the world's railway construction shows a lower figure after 1870, and the secular drop in price level during the period from then up to the middle of the eighteen-nineties has thus

an analogy in this reduction. Simultaneously with the new rise in prices from the middle of the eighteen-nineties appeared also a sharper rise in railway construction.

But this example also reminds us that inward, qualitative changes are all the time transmuting the import of the quantitatively stated dimensions. With the gradual development of motor traffic, railway construction has entered a new and calmer phase, which again shows that the definition of secular waves involves many difficulties of a statistical kind. It cannot be asserted that these difficulties are insuperable, but one may say that economic research has hitherto only touched these questions superficially.

Different Bases of Explanation

Despite the difficulties which the inward structural changes put in the way of a study of secular fluctuations, it cannot now be denied that the last hundred and fifty years—the era of industrialism—have actually exhibited secular waves of from fifty to sixty years' duration, and that these waves have been associated with the more important events in economic life.

When it is a question of explaining these waves, we are faced, whether we like it or not, by a problem which goes far beyond the bounds of economics. It is a question of the association between economic, social, and political phenomena, and the fact that discussion can no longer be kept on the purely economic plane therefore makes the question one of general philosophical import. There is here a contest between two radically opposed views: according to the one it is the

spontaneous and independent intervention of mankind which, along with chance, determines historical development; according to the other the fate of society and of the individual is governed by universally applicable natural laws.

We cannot in this brief economic treatise discuss the riddle of free-will which nevertheless lies behind every general problem of causation in social science. We can only emphasize the fact that the cleavage between man's own view as to his freedom of action and the views of social investigators as to the play of economic forces or laws applies in equal degree to short and long epochs. The economics of equilibrium attempted to escape the philosophical conflict by speaking only of timeless associations; cause and effect needed no explanation when they said, "If factor A rises, factor B has a tendency to fall". By ignoring time they succeeded at the same time in eluding the riddles of the problem of causation.

The *historical* school, which came into prominence during the latter half of the nineteenth century, saw through the assumptions of the economics of equilibrium, which passed over the really important problem of causation and time. This historical attitude set out to explain causes by a study of economic changes as they occurred in time, but their economic science was thus transformed into a wide and by no means exact description of everything that occurred during the period studied. Because the historical school distrusted the laws of the economics of equilibrium, they themselves arrived at the point of holding that no laws could be laid down.

The third trend of thought which is now beginning to come to the fore is an economico-statistic concep-

tion which in its attitude to the causation problem in economics approximates to the mental standpoint of *natural science*. Reality, as it appears in economic statistics, is its basic material, and that which it is concerned to investigate is the relation, the causal association which exists between the various phenomena. The laws which it lays down cannot, therefore, be stated in so general a form as those of the economics of equilibrium; among other things they are determined by time and are valid for a certain economic period. Secular waves are regarded in entirely different ways if the point of departure is that of the economics of equilibrium, of the historical school, or of the economico-statistic which approximates to the natural science view of causation. It is this third direction which is followed in this book.

The Economic Conception of History

He who approaches the study of secular waves by way of a course of the sociological literature of the nineteenth century will, consciously or unconsciously, attach great importance to the conception of economic surroundings as a causative factor in history. This view of the decisive significance of economic conditions to political and social development is nevertheless hardly of the same fundamental importance as the questions raised in the last section.

Actually the economic conception of history has borrowed its ideas from two opposed sources; from the oldest classic theory it has taken the notion that there are original causes—"primary causes"—which imposed their effect upon all other factors without being themselves subject to influence from the external

world. From the newer mode of thought of natural science it has adopted the notion of the economic milieu as the starting-point for a general explanation of social and international changes.

This conjunction of two mutually repugnant theories has not led to a happy result, and the economic conception of history involves a now exploded idea. This conception gives in no sense a philosophical explanation of evolution, and is to be condemned as an assumption in the study of secular waves, because it explicitly asserts that certain phenomena are causative and others resultant.

The "Cause" of Secular Waves

So we are at last ready to search for an answer to the question, "What is the cause of secular waves?" At this point we must once more remember that it is now a question of the fifty- or sixty-year periods which are observed in prices, interest rates and wages, trade and production. The longer periods, and in particular those of the general upward tendency which is called economic progress, we keep for the last.

The traditional answer to the question as to the cause of secular waves is that it is gold production which determines the secular movements of price level, and accordingly gold production which lies behind all the secular fluctuations of industrial life. That this very astonishing theory was so long and so generally accepted, is due to the fact that people supposed themselves to have incontrovertible evidence that such is really the case. When the Californian goldfields were discovered in 1848, a stream of gold flowed out over the world; when this gold appeared in commerce, prices

had to rise, since the quantity of goods was not increased, while the quantity of money suddenly and rapidly expanded. The consequent rise in prices contributed, as always, to the growth of enterprise, and the increase in prices, like that of industrial production during the next twenty years, could be traced back to the gold discoveries in California, and this although gold production was slightly declining from the eighteen-fifties until the middle of the eighteen-eighties. (See Fig. 5, page 75.)

However, new gold supplies began to come into use during the eighteen-eighties, principally from the South African workings, and, at the same time, important inventions were brought out in the sphere of gold production. When, about a decade later, the level of prices stopped falling and entered upon a new secular rise, this was regarded as being new evidence in favour of the theory that gold was at the back of everything. When three decades' increase in gold production was exchanged, at about the time of the outbreak of the Great War, for an almost unaltered annual production, and consequently the level of prices during the nineteen-twenties was, on the average, falling, it was once more regarded as proof that gold production is the origin of secular waves.

And yet it is, to say the least, doubtful whether gold really plays this leading part. We need not trouble to observe that, in the comparison between gold production and price level, the importance of silver as a coinage metal during a great part of the nineteenth century is often forgotten. There are other grave objections to the view of gold as a primary cause. In this regard let us consider for a moment the association between the price level of goods and gold production from the point

of view of the gold-mine owners. A rise in the price level means a reduction in the value of gold; with rising prices of goods he gets less goods than before in exchange for the newly produced yellow metal. It is therefore natural that the mine-owners should tend to restrict production when the price level of goods has been rising for some years. A fall in the price level of goods means, on the other hand, that more and more goods are obtained for the same amount of gold, and it is thus in the interest of the mine-owners to increase production when the price level has been on the decline during a period of some length.

That is just what has happened. After ten years of falling prices gold production begins, in the middle of the eighteen-eighties, to rise; after fifteen years, during which the price level of goods rises, the increase in gold extraction ceases about 1910. But then, it may perhaps be objected, the discoveries of gold and the improvements in gold extraction cannot have anything to do with the variations in the price level of goods; the discoveries and the inventions must be "accidental" occurrences which stand in no relation to the general economic situation. But this contention is contrary to all experience of other spheres of material development; discoveries and inventions have had a tendency to appear when they are really needed and can immediately be used. It is typical that it so often happens that the same inventions are devised by different inventors independently of one another. That a whole series of important gold-fields should have been discovered in the eighteen-eighties is scarcely an accident, but was closely associated with the increasing profitability of gold production. That the gold discoveries in California in 1848, and in Australia in 1851, actually

produced a general rise in prices will not be denied, but these discoveries are chiefly important as the springs which release the accumulated forces making for a rising secular movement.

That not even these, the most revolutionary of gold discoveries, should be regarded as a primary cause of the subsequent secular rising of prices and production seems so much the more probable, in that this increase of employment in industrial life is also capable of a completely different explanation. A theory has, in fact, long ago been put forward about the economic and political consequences of the uneven increase in population, and this theory contemplates precisely the conditions of the time round about 1848. After the Napoleonic wars came a great and sudden increase in the birth rate which entailed that, from twenty to thirty years later, when those born in the prolific years were grown up, a "tidal wave" of applicants for work was perceptible. The end of the eighteen-forties was accordingly distinguished by a strongly increased activity in industrial life—quite irrespective of the influence of the gold discoveries—and at the same time by political conflicts resulting from the tension in the labour market. After a couple of decades of brisk increase in production and a rising price level, the upward movement was brought to an end by the Franco-German War, which produced a new tidal wave, and this in its turn occasioned the new advance towards the end of the eighteen-nineties. This advance matured during the Great War.

This explanation is especially interesting because it embraces not only the economic but also the political changes. The periods of secularly rising price level have at the same time been the periods of political tension

and war. The periods of secularly falling price levels have been the periods of peace (see Fig. 5, page 75). It has thus been possible, without needing to resort to the one-sided explanation of the economic conception of history to elucidate in this way the interdependence between economics and politics.

Weighty objections can, nevertheless, be raised to the view of population waves as a *universally applicable* cause of the rise of the secular wave. If the statistics of population be examined it will in fact be found that the increase of population after 1871 was far less marked than after 1815, and when one comes to the years after the Great War the increase is quite inconsiderable. None the less everything indicates that the fifty to sixty years' secular wave is asserting itself with undiminished vigour; the tidal waves in population-increase cannot therefore, as such, simply be explained as the origin of these waves. It may certainly be thought that the generations born after a war period will be differentiated in a qualitative sense from the other generations, and in their time call forth a new "tidal wave" with its economic and political consequences. But this assertion cannot be proved. In these circumstances one is obliged to declare that neither the tidal waves of gold production nor those of population-increase can be regarded as governing causes of the secular waves.

Not Cause, but Causal Association

If we abandon the idea of discovering a primary cause governing the whole development, the possibility of a convincing explanation at once appears much greater. For the most obvious thing about the

prolonged waves is their dependence upon precedent development; a fall involves a future rise and a rise a future fall.

We shall not be far out if we apply the same method of reasoning to the secular as to the cyclic wave. A very similar spirit of enterprise is noticeable in the periods of rising prices from 1848 to 1873 and from 1896 to 1920 to that which characterizes the cyclic upward movement. More and more of the productive forces are set in motion by the advance of the means of production. In spite of shattering crises, the supply of credit is so liberal that the level of prices rises on the average; savings thus gradually are more and more demanded, so that the level of interest, on the average, increases. This process is continued through a series of long and short cyclic waves and has hitherto always—that is to say, two or three times—culminated in general inflation during a war period. By inflation we mean, now and later, quite simply a rapid increase in the amount of available credit which causes a violent mounting of prices. The inflation is followed by a severe “deflation crisis”, which occasions a liquidation, not only of the last boom, but also, in one way and another, of the whole previous secular movement. The severe “peace crises” in 1817, 1873, and 1920 in the leading industrial countries were all of this nature.

The position of the entrepreneurs and the credit givers during a descending secular movement is of an entirely contrary kind. They are then afraid of a general inflation with its risks of a subsequent crisis, and policy is directed to a cutting down of the costs of production with a view to increasing profits. The whole of industry consequently becomes less directed to the formation of new means of production. Pro-

duction is relatively more adjusted for use at the moment than for use in the future. The advance in prices during the rising phase of cycles is not very large; during depressions the falling of prices is important because demand for new enterprise is absent. Just as the secular advance in prices ends in inflation and a sharp fall in the value of money, so the secular period of falling prices seems to have a tendency to end in crises connected with doubt as to the credit institutions' ability to support industrial life. The times of inflation before 1870 and before 1920 were distinguished by a superabundance of paper currency, and the times of inflation before 1848 and before 1896 by "scarcity of money".

What is at the back of this contrast between the respective positions of the credit givers and the entrepreneurs during the rising and falling slopes of the secular wave? Is it not the same thing as that which lies behind the rising and falling phases of the cycle? Is not the secular wave a new, longer cyclic wave, entailing still more comprehensive formation of new means of production, and demanding still more time-consuming reorganization? These are questions to which we can hardly answer "yes" or "no". But we can assert that this is the right way to approach the subject, and that the wave movement of economic life obtains in this way a more convincing explanation than those which have hitherto been advanced.

Economic Progress

Behind the secular waves of from fifty to sixty years' duration which we have just been discussing, another fluctuation of far wider span is dimly perceptible. These

changes appear clearly in two spheres, in the growth of production and in that of population.

The industrial revolution which, towards the end of the eighteenth century, ushered in the modern era, was characterized by a sudden increase in the potentialities of production and by a sudden increase in the population. Thus it is scarcely surprising that the association between these two phenomena came at that time prominently under discussion, and that the Malthusian law of the unequal rapidity of the growth of subsistence and of population should be regarded as a notable discovery. Malthus' and Ricardo's pessimistic prophecies, which we touched upon in the first chapter, have not, however, held good. Both population and production showed, up to the end of the nineteenth century, a violent increase, but production grew the more rapidly of the two, so that the standard of living underwent an extraordinary improvement. Since the end of the nineteenth century a new phenomenon has appeared which has further widened the breach, in that the rate of increase in population has shown a more and more pronounced tendency to diminish. As production, on the other hand, has maintained its upward course with almost undiminished speed, this has involved a further accelerated increase of the amount of production per head.

In *this* connection, however, we need not attach importance to the fact that population had already for the last five decades been showing a slackening of its rate of growth. It is a fact common to the curves both of population and production that, after a century of extremely swift ascent, they began, during the later decades, to rise more slowly.

We may accordingly surmise that this rapid rise

during the first hundred and fifty years of the age of industrialism involves the most quantitatively important part of the industrializing process. Thus we should find ourselves in the presence of a transition from one state of equilibrium to another, and may, in any case, guess that this process occupies altogether two or three centuries.

If, with the guidance of the population and economic statistics, we arrive at this result, it is obvious that even economic progress must be regarded as a phenomenon which has a wave-like forward motion. A glance at the economic history of the last two hundred years is enough to show clearly that one cannot assume a fixed percentage for economic development. In fact, one should rather bear in mind that the wave-like movements suggested here can never rightly be perceived, for behind these waves, each of two or three centuries, there may lie variations which prevail for yet far longer ages. We lack an upper limit.

If it be conceded that the secular wave of fifty to sixty years may be regarded as a very long cycle, it is natural to take the same view with regard to industrialization and economic progress. The whole development of industrialism hitherto may be regarded as a process of investment which repeats on a gigantic scale the formation of new means of production which takes place during the short cyclic advance.

Our examination of the periods of economic life has thus led us to regard them as a system of *ever longer and longer cycles*. Every exertion of productive forces in providing for the needs of the future is succeeded, after a time, by a period of slackening off, during which the community grows into the new apparatus of production and rids itself of the additions which have

proved superfluous. The longer the formation of new capital has been going on the longer the time required for the reorganization, but all these different periods of effort and recovery proceed simultaneously.

This way of looking at it should not seem strange, for each of us practises the same system in his daily life. Working hours have their intervals, the day is divided between work and rest, the week into working days and holidays, the year into working months and vacations, indeed the whole of life into working time and retirement. The seasonal period of industrial life corresponds, then, with the working hours of each day, the short cycles with the day, the long cycles with the week, the secular waves with the year, and the industrialization period with the whole human life.

Economic fluctuations attach themselves, accordingly, to a series of periods of unequal length, and these periods develop simultaneously, and thus together determine the economic situation at each moment. But it does not follow thence that these movements are mutually independent. On the contrary, they act upon one another and influence one another in a number of ways. It is this that we shall now investigate in the first of the four following chapters, thus completing the preliminary survey of the import of economic fluctuations.

CHAPTER VI

PSYCHOLOGY OF ECONOMIC PERIODS

MISCALCULATION OF THE DURATION OF THE CURRENT MOVEMENT

ALTHOUGH we now for the first time take up the psychological aspect of the cycle, it is yet obvious that even an outline such as has been presented in the last three chapters is actually constructed upon certain assumptions concerning human methods of thought and action. When one is speaking of the vegetation in a locality and describes the soil and climatic conditions that are to be met with, one includes by implication the reproductive and disseminative capacity of the vegetable world. In the same way in economic life the will to progress and development may be taken for granted.

But these psychological influences cannot be taken absolutely for granted. Even though the human psyche has not necessarily changed during the era of industrialism, yet the external circumstances are altered, and *by this means* the psychological situation may be modified.

This applies, above all, to the position in the community of the entrepreneurs and the workers. Free competition has taken the place of a State-controlled system of monopoly, and this has fundamentally

transformed the conditions of production of a hundred years ago. But the salient point, the cyclic wave, has not in itself been influenced by this transformation. For the weighing of the present against the future is a process which is not directly affected by structural changes in the organization. Under free competition, under the trust system and under absolute State direction, the question retains its original character. The desire to save for the future, to develop the apparatus of production, to promote economic progress, may in externals certainly be conceived and put into effect in a variety of ways, but the motive and the consequences for the whole community are and remain the same.

Economic Risk

The starting-point for short as for long cyclic waves—if progress itself is also to be regarded as a cyclic movement of gigantic dimensions—is the desire of mankind to improve its condition. But there are other points to be considered. For every new undertaking, every addition to the means of production, involves a willingness to take risks. It may certainly be said that there is considerable risk in *not* developing an undertaking, but that is only so if the rest of industrial life is moving forward. The whole economic life of the Middle Ages is characterized by the reduction of economic risk to a minimum, because mankind in those days turned away from mercantile pursuits.

In modern times the pioneer spirit in the economic sphere is strongly developed, but it should be borne in mind that the upward swing of the cycle and progress depend upon a relatively *small section* of the community. It is the desire on the part of a group of entrepreneurs

to utilize opportunities for expansion which leads the credit intermediaries to extend credit, thus also taking a risk; but owing to the multiplicity of lenders, this risk is far less than that borne by the entrepreneurs or the various branches of industry. The majority of the savers is, in general, more concerned in securing the payment of interest than in appreciation of capital value; it is among them that caution is most highly developed.

We thus have three grades who are conscious of risk—saver, credit intermediary, and entrepreneur—indicated in the chart (Fig. 4, page 59). The conception of the magnitude of the risk of each of the three groups varies with the cycles; it is least during the boom and most during the depression. But the contrast between the unlimited optimism in the good times and the hopelessness in the bad times is greatest among the entrepreneurs and least among the savers. The credit intermediaries take up, in this respect also, an intermediate position.

It is this *diversity in the estimation of risk* as between different groups of the community which is especially favourable to upward cyclic movement and progress. The savers who, unless they are shareholders, are not willing to undertake the whole risk of private enterprise, entrust without hesitation their savings to the banks, which are also insurance offices of a kind. Even bond issues are often in certain countries practically guaranteed by the issuing banks and thus are of the nature of bank deposits. If there were no banks to divide the risk in the interest of the saver, savings and investment would undoubtedly be very considerably less than they are now. The upward cyclic movement would in such circumstances be less vigorous and the depression less marked, and progress as a whole would

move forward more slowly. In this way, too, we have arrived at the result that cyclic fluctuations and economic progress are mutually dependent phenomena.

Competition

It is easy to perceive that a restriction of economic risk must at the same time mean a restriction of competition. It is thus natural that the risk-free economic life of the Middle Ages was distinguished by the restriction of competition to the least possible amount. The whole purpose of the guild system was to eradicate risk and competition. In the sixteenth, seventeenth, and eighteenth centuries the whole social edifice was transformed; commerce, which had been of secondary, came to be of primary importance and immutability was transformed into movement and development.

Free competition and the diffusion of economic risk over a large proportion of the members of the community perhaps reached its highest level in the last decade of the nineteenth century. But from the eighteen-eighties the organizations, trusts, and trades unions were beginning to concentrate and limit the economic risk to larger units. It is undeniable that the rise of organized labour in some measure checked the growth of investment, for what does the demand for higher wages portend if not a wish that the present will use up more of the resources which the formation of new means of production would reserve for the future. Seen from *this* point of view, the trades union movement may be regarded as counterbalancing an economic policy which would limit to-day's provision in favour of to-morrow's. We remember, in this connection, that the Soviet Republic's five-year plan

involves a process of enforced capitalization which, more or less ignoring actual consumption, seeks to create an immense increase of resources for the means of production, and thus to increase the possibilities of future consumption.

How have the entrepreneurs' organizations affected the growth of investment? It seems as though the trusts and great enterprises, by reason precisely of the special form of competition which exists between them, have a fresh motive for pushing on the increase of the means of production. For in the days of free competition it was the foremost enterprises producing the same goods which competed on the market, whereas now, when every important commodity is under the control of a trust or a cartel, it is a competition for the purchasing power of the consumer. It is the affair, for example, of the artificial silk cartel or the great motor-car manufacturers to persuade the consumer that he ought to expend a larger part of his resources on artificial silk goods or on motor cars. If it is to be possible for the great industrial combines to conduct a vigorous sales policy directed against the consumers' purchasing power as a whole, they must accelerate development in advance. It is important for every trust to be equipped with comprehensive means of production, and to be able to grasp every occasion to satisfy an increased demand for their goods. Big business and the trusts are therefore the great instigators of the increase of new means of production.

In the meanwhile it is now in the nature of the monopolistic policy to build new rationalized factories and to wind up the old-fashioned undertakings, and then to try for as long as possible to maintain an unaltered state of things while the monopoly profits are reaped.

Even though this principal lies at the root of trust policy, it cannot be said that it has been in practice applied to such an extent as to retard the formation of new means of production. For new inventions, new habits of consumption, and new markets are constantly breaking through the monopolistic scheme and necessitating new efforts, that is to say, new formation of the means of production.

But apart from the desire to improve the provision for our needs, to take risks and to compete, there still remains a weighty psychological incentive to economic progress. This is the initiative propensity of mankind or "herd instinct" as it is aptly called by American psychologists. With every entrepreneur who makes provision for the increase of production and the enlargement of his factory, the probability is increased that still more will do likewise. This is the principal reason why the first part of an upward cyclic movement does not go smoothly upwards, but constantly increases the steepness of its ascent. So long as no obstacles appear in the form of reduced demand for the products and diminished profit or increased difficulty in obtaining capital, raw materials, and labour, the way lies open for a progressively enhanced activity of enterprise. But in the course of expansion these obstacles begin to make themselves more and more perceptible, and then the upward movement is more and more slowed down. It is the same with the falling tide. The activity of enterprise is reduced to a greater and greater extent, and the further the movement advances the more it gathers speed. But at a certain point the economic and technical conditions for increased confidence begin to appear, and distrust of the position ceases to spread.

There is a further universal psychological cause of

economic progress, the importance of which is often underrated, namely, speculation. Were it not for the fact that mankind always, *to some extent*, rightly discounts the economic changes in the near future, the crises would be of a kind so catastrophic that the will to enterprise would perhaps suffer an irrecoverable blow. Speculation in the commodities market, in the securities market, and in the market which deals in short-term credit ensures also an uninterrupted levelling-out process. Indeed, the more of foresight and insight speculation has, so much the more is the adjustment of industrial life to the real economic position facilitated.

Does Man act rationally?

All our foregoing reasoning about the psychology of economic fluctuations proceeds from an assumption, not mentioned hitherto, namely, that man acts rationally. That is to say, in other words, that he is able in some degree to calculate what decision is called for under given external conditions. Man, in his economic behaviour, is governed by laws, not as an individual, but as a group or mass; there is, therefore, a normal behaviour which may be employed as a basis for economic science.

The correctness of this assumption has many times been denied on the ground that the individual does not behave rationally and that there are many other and stronger motives than the purely economic. And if the individual does not behave rationally, why should a collection of individuals do so?

The point which is overlooked in this objection is that, although man certainly does not always behave rationally in economic matters, he behaves in such a

case in many *different* irrational ways. If, therefore, we take *a mean* of a large number of human motives in the realm of economics, the motives of the non-rational will eliminate one another, while the rational will give the general, the typical, behaviour. For this reason we can safely assume that human beings as a whole behave rationally, whence it naturally follows that they foresee the future changes.

If we select groups of the community of one kind or another—such as entrepreneurs, artisans, agriculturists—and study the psychological attitude of each, the mean of the behaviour of these groups will be found particularly informative. When the psychology of economic fluctuations is in question, the reactions and behaviour of the entrepreneurs and the credit intermediaries should be the first subjects of investigation.

We are now at last ready to ask ourselves: “How will the economically active groups of the community react to the economic periods? How will these periods psychologically promote actions and thereby perhaps new periods also?” We have over and over again insisted that the various economic periods constitute the framework of the economics of time, just as either the instant or eternity is the framework of the economics of equilibrium. It is thus natural to seek the psychology of the economic periods in an interdependence between these periods. In reality, much of the part played by psychology in economic fluctuations may be regarded as a misconception of the duration of these periods.

Season and Cycle

It is scarcely surprising that it should in general be difficult to keep the different periods of economic life

apart. One asks oneself whether times are improving or growing worse, but seldom takes into consideration in what degree this depends upon the season, upon the cycle, or upon the average rate of progress.

An examination of the history of economic cycles will show us to what a surprising extent the seasonal variations have influenced the cyclic movement. Further evidence of this state of affairs was supplied during the depression of 1930–1931, in that no one expected an upward cyclic movement at any other time of year than the autumn or possibly the spring. It is the seasonal advance which is needed to release the expansive forces, not less in the sphere of consumption than in those of production and credit.

The increased credit requirements of agriculture, industry, and trade in the autumn thus supply the impulse for the inception of the upward cyclic movement, and also for the breakdown of the boom. The increased amount of purchasing power which is placed during the autumn at the disposal of industry for purely seasonal needs acts during a depression as a push in the upward direction, assuming the existence of other conditions for better times. On the other hand, the seasonal credit requirements of industry act during the boom as an extra burden on the money market already drained by enterprise, and force on the crisis.

Since the season has this effect, largely psychological, upon cyclic development, it is natural that the cyclic waves should, as a rule, have a length corresponding with an even number of years. The year, the seasonal wave, is thus an indivisible unit like a piece in a game of dominoes. The short cyclic waves are, therefore, as a rule exactly three (or exceptionally exactly two or four) years in length. So the season affects not

the cycles only, in that it regularly releases the forces which encourage enterprise; it is also a standard in the system of economic periods.

But just as the seasonal advance often serves as a start for a new upward cyclic movement and thus actually induces that movement, so does the short (three-year) cyclic wave play a similar part in the longer (seven- to ten-year) cyclic wave. The general increase in production during a cyclic recovery of the former kind is taken by the entrepreneurs and the credit intermediaries as an upward cyclic movement of longer duration. And although the short cyclic wave ends with a transient depression, enterprise, with its eye on the more distant future, is soon ready to carry out the programme. This association between the short and long cyclic waves is very clearly illustrated by the development in the United States during the past decade. (See Fig. 10, page 172.)

Cycle and Secular Variation

The psychological connection between cyclic waves and secular variations is of no less importance than the relation between seasonal and cyclic periods. During a lengthy cyclic advance and almost during the whole upward path of the long cyclic wave, the entrepreneurs, and so gradually the public as a whole, are possessed with the idea that the advance is a permanent phenomenon. It is thus fully and firmly believed that it is not a question of a transient, induced increase of investment but of a steady and reliable secular change. This conviction has very important consequences, which in a measure contribute to the reduction of prosperity and the prolonging of the sub-

sequent depression. There are two spheres in which this condition makes itself especially felt.

In the first place, this misconception of the bearing of the cyclic advance has the result that the wage policy of the labour organizations is framed in a manner which in the end recoils on the wage-earners themselves. When at the close of a period of prosperity an increase of wages is extorted, which contributes in a measure to the precipitation of the crisis, and the high rate of wage is afterwards forcibly maintained by the organizations for as long as possible, this brings about a needless reduction in production and in national income. It may be replied that, as the wage-earners wish to increase their share of the national income, a boom offers the best opportunity to raise their demands, for at such a time the employers are particularly anxious to keep up production. This is an objection the bearing of which is political, and it cannot be met by theoretic reasoning. One can only say that this policy, whether justified or not, causes a diminution of total production and total national income.

In the second place, the monopolistic combinations among the employers have taken the boom as the basis for a price policy which fundamentally rests on the assumption that the upward cyclic movement is a secular movement. It has become evident at most crises that a price policy which contemplates extracting "all that the traffic will bear", brings about, during the subsequent depression, consequences very distressing to the employers themselves. The formation of new means of production within the monopolistic enterprise has gone forward during the boom under the influence of the prevailing excessive earning capacity. When the depression comes and compels the

radical cutting down of selling prices, it happens that the combine breaks up and many undertakings have to go into liquidation. The history of trusts and combines provides a multitude of examples of this state of affairs.

Secular Variation and Progress

Even the prolonged waves of from fifty to sixty years' duration give rise to judgements which are found in the long run not to hold good. During a period in which the price of goods rises on the average and the formation of new means of production proceeds with especial vigour, the whole of industrial life is based on the assumption that this general tendency is permanent. In particular it passes into the general consciousness that the level of prices has a natural tendency to rise. No one is surprised that everything, from a packet of needles to an estate, costs more than it did ten years earlier, and everyone expects in ten years' time to pay still more for all commodities. This increase in prices, which is itself a consequence of increased formation of new means of production, becomes in its turn the cause of fresh raising of prices. Political causes apart, it is not surprising that such a development culminates in general inflation. The whole psychological situation is favourable to such a progress of events, and a study of the economic history of the period between 1895 and 1920 will yield support for this contention.

During the decline of the secular wave the opposite happens. The whole of industrial life adapts itself gradually to a generally falling price level and a relatively quieter formation of new means of production. Just as the prolonged rise was marked by willingness to take the offensive and by individual enterprise, so

now thoughts are turned to the retention of the positions gained. The secular period of decline is the era of organizations. The trusts have been called for this reason "the children of necessity", and it is not by chance that the rise of the modern system of trusts and combines dates from the eighteen-eighties, the time of a prolonged downward movement. At the same time the labour organizations began to develop and to attain great importance in industrial life. Looking at the matter from this point of view it is quite natural that the last decade, with its generally falling price level and its *relatively* limited formation of new means of production, has more points of similarity with the period from 1874 to 1895 than with the phase between 1896 and 1920.

The comparison of the economic periods from the seasonal fluctuations with their crests in spring and autumn to the secular waves, which is presented in Fig. 6, may serve as a summary of this line of thought. It may be appropriate to study this chart at this point, since economic psychology has to a great extent shown itself to be bound up with the mutual association of the economic periods. Only the shortest period, the year or seasonal wave, has ultimately a simple primary cause to thank for its origin. All the economic waves are in the end psychologically conditioned and, as is shown by the schedule in Fig. 6, may be regarded as eras of development of ever wider and wider span.

The explanation of this strange system of waves which throws its arch ever further and further forward in time is to be sought in the psychological relations between the waves of different length. It is a misconception of the duration of changes that contributes to the formation of periods. An advance of a transient

nature is regarded as a protracted or permanent advance; a decline of the more temporary kind is taken to be more or less permanent. That which in the end lies behind

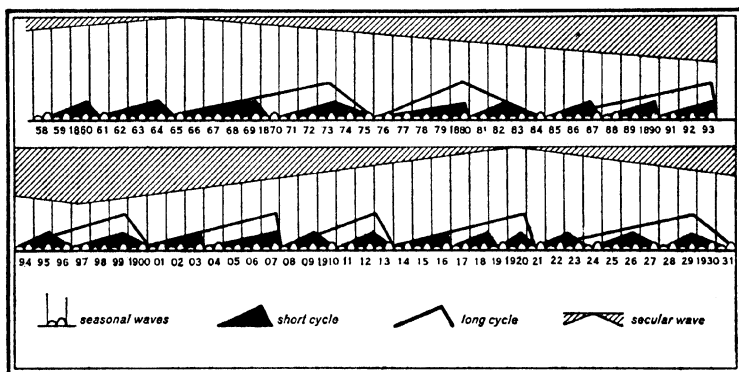


FIG. 6.—SCHEDULE OF THE DIFFERENT ECONOMIC PERIODS

The cyclic waves are principally determined by the fluctuations in iron and steel production in the United States.

The secular waves are taken as following the general direction of the movements of the price level.

these psychological connections is man's inability to penetrate the obscurity of the future and his habit of allowing the impressions of the moment to govern his opinion as to future development.

CHAPTER VII

AGRICULTURE AND INDUSTRY

THE DEPENDENCE OF AGRICULTURE UPON THE APPLICATION OF CAPITAL AND UPON INDUSTRIAL CYCLES

THE industrial revolution which began to take effect in England at the end of the eighteenth century extended in the nineteenth to all the Western countries. If one compares the conditions of industry in 1780 with its conditions in 1930, such vast differences appear as to render the comparison essentially meaningless. Whereas the economic life of the eighteenth century was to such a degree based upon agriculture that the early political economists were able to assert that this was the only really productive occupation, production in our day is so far industrialized that the occupational centre of gravity lies absolutely in the sphere of industry. This implies that the last hundred and fifty years must have wrought a progressive and profound change in the whole of economic life. If it is now to be supposed that the condition of agriculture plays a decisive part in economic cycles in general, this influence must have increased in the same measure in which agriculture has declined in importance, for otherwise the same result cannot have been attained under the economic system of the eighteenth as under that of the twentieth century. The odd thing is, that

those who explained the industrial cycles as being caused by the variations of the magnitude of the harvest never took account of these structural changes during the last century and a half.

That circumstance might well have been taken as a sufficiently weighty objection to this interpretation of cyclic fluctuations, but since in Chapter IV. we confined our explanation of the cycle to the fluctuation in industrial production, we must now complete the picture by a description of the significance of agricultural production in modern times.

Harvests and Cycles

We need not go back to the Middle Ages to observe how, before the rise of industrialism, the economic conditions were entirely determined by the result of the harvest. A hundred and fifty years ago in England, a hundred in Germany and the United States, and seventy-five in France and Sweden the yield of agriculture was still the measure of the cycles. With regard to earlier times it may thus be said that years of plenty were good years and years of dearth bad years—no other explanation of the cycles is on the whole necessary. We shall not touch upon the fact that, especially in the trading states, there were periods of inflation and speculation, with consequent crises, associated with the finding of precious metals in the course of geographical discoveries and due to abuses in the control of currency. If only those universal cyclic changes are considered which more or less regularly and fairly often occur in the community, harvest variations are, in fact, a quite sufficient ground of explanation up to the coming of industrialism.

When the idea was advanced, in the course of the last half-century, that this was still the case, it arose from a misinterpretation of economic statistics. The real point is, however, the belief in a *primary cause* which, independently, governs all economic periodicity. If this idea were not so firmly rooted, the complex rhythm of economic life would hardly have been associated with anything so remote as sunspots. When it had been established that economic crises recur about every tenth year and was also found that the appearance of sunspots showed a periodicity of from ten to eleven years, this was regarded as evidence of a connection between these phenomena. The sunspots influence terrestrial weather; and vegetation, that is to say the harvest, is in its turn dependent on the weather. Finally, it was believed possible to demonstrate a connection between variations in the abundance of the harvest and industrial cycles.

If this chain of causation between astronomical, meteorological, agricultural, and industrial phenomena is examined, many flaws will be found in the evidence. To take the famous sunspots for a start, the period which was to form, so to speak, the prototype for all the other fluctuations has turned out to be extremely variable. If one compares the sunspot curve and a general cycle curve for the last hundred and eighty years, it is, in fact, impossible to find a trace of conformity to any law at all.

Intensive statistical investigations have shown, moreover, that the connection between the activity of sunspots and terrestrial weather is of a highly complex nature, and further, that the harvest largely depends upon purely local weather conditions, chiefly on the weather of the locality at the time of germina-

tion. But the most important gap is that in the relation between agriculture and industry. The whole theory receives its *coup de grâce* when the actual connection between the harvests and the industrial cycles is more closely examined. To explain this connection one ought to proceed from the assumption that there *can* be a *mutual* dependence between the harvest and the industrial cycles.

Cycles and Harvests

When the object is to investigate the cyclic connection between agriculture and industry, the natural course is to apply oneself first of all to a study of the variations of the wheat and cotton harvests, these being decidedly the most important crops.

For the elucidation of this connection we shall quote as an example the fluctuations of the price and the production of wheat in the United States during the last sixty years, a period which falls entirely within the age of industrialism. If we examine the upper diagram (A) of Fig. 7 we find a comparison of the amount of wheat production and the price of wheat during the same year based on the quotation in the farming area of December 1. A cursory examination at once shows that there is a contrary relation between production and price; big harvests produce a fall in price and meagre harvests a rise. This, indeed, is in perfect accordance with the time-honoured law of supply and demand. So far, the determination of price seems really to depend on the bounty of nature.

But when we transfer the price curve only one year, so that the price alteration of each year corresponds with the following year's production we get a quite

different impression. This is the gist of the lower diagram (B) in Fig. 7. This simple transference leads to exactly the opposite result. The rise in price now appears simultaneously with the increase in production and the fall in price simultaneously with the decrease in production. This indicates that the price during the *previous* year affects the year's wheat production to as

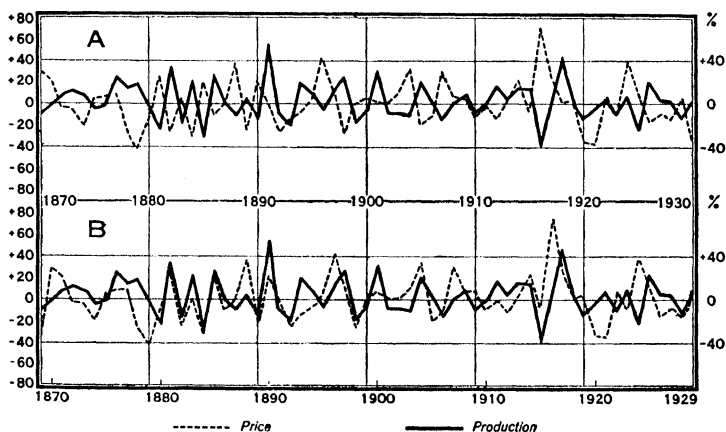


FIG. 7.—PRODUCTION AND PRICE OF WHEAT

The percentage of increase or reduction from year to year of wheat production and price in the United States. The price refers to the quotation in the agricultural area on December 1.

A = comparison of production and price in the same year.

B = comparison of price during one year and production during the year following.

great an extent as this production affects the same year's wheat price. But upon what do the price variations depend which thus in part control production? Why, upon the demand for wheat which in its turn is dependent on the general cyclic position, that is almost to say, industrial conditions.

When good times prevail in industrial life, a great deal of wheat is required for domestic consumption and

for export. If this cyclic improvement occurs between seed-time and harvest, the year's wheat output is relatively small and the consequence is a rise in price. This rise in price induces the farmers to sow a larger area and also to manure the ground freely, so as to increase the produce and draw large profits from the high price. If prosperity continues into the next autumn, the greatly increased production will, perhaps, be saleable at an unaltered price, but the farmers have more often than not over-estimated the possibilities of the rise in consumption. Even if the boom continues, the increasing scarcity of capital may have put a stop to the continued growth of consumption. The unusually big harvest can thus only be sold at a declining price, and this decline is often the first sign of a drop in price level. But it does not follow from this that the big harvest was the cause of the crisis, for behind the decline in the price of wheat lay a reduced demand resulting from the scarcity of capital. And this lack of free purchasing power is a direct consequence of vigorous industrial investment. As to the farmers, the decline in the price of wheat leads in either case to limitation of acreage and reduced manuring, owing to which wheat production is reduced again.

What was not taken into account when it was declared that agricultural production governs the industrial cycles is the difference between the conditions of production in agriculture and in industry. Agriculture cannot quickly adapt itself to changes in the situation; once the seed is sown, the crop must be reaped and put on the market, nor can the farmer like the industrialist either wholly or mainly suspend production. It may certainly be warehoused in expectation of better times, but the risks latent in this method were

experienced in America during 1930 and 1931. The farmers have thus a tendency, guided by the price of their product, both to over-estimate and to under-estimate the future demand.

The consequence of this process is that the production and the price of wheat have a certain tendency to fall at two-year intervals; high production and low price, low production and high price constantly alternate. This circumstance appears clearly from Fig. 7 (page 110). If it were not so, one would not, by a simple transference of one of the curves to an extent of only one year, obtain a clear agreement between the curves which before were clearly in opposition.

But, as we have seen, the typical *short-cycle waves in industry are triennial*; in industry also, future requirements, that is to say, the extreme demand for new means of production, are over-estimated. The average time occupied in the establishment of production facilities is longer than the manufacturing period of the articles of consumption. Even such industrial capital expansion as *most rapidly* leads to an increase in the quantity of goods put on the market takes more than a year. The cyclic wave of agriculture is, then, biennial, while that of industry is, on the average, triennial, and between these two waves there is an intimate association; sometimes they intensify each other's movements, and sometimes they neutralize each other.

It can, however, without doubt be asserted that the industrial cycle curves have for many decades been the more important. Agriculture seeks to adapt itself to the cyclic situation which industry has created, and certainly is not without effect upon industrial cycles, without, however, deranging them to any great extent.

It may, on the whole, be said that this effort for adjustment on the part of agriculture has an *exacerbating* effect on the alternation between good and bad times. The upward movement is *more vigorous* when the farmers, in expectation of further increased demand, make, simultaneously with the industry, demands upon capital and labour. The depression is *more profound* when agriculture, like industry, loses confidence in the future, but at the same time requires saved-up capital for warehousing the unsaleable part of the crop.

If we glance once more at Fig. 7 (page 110), we shall find that there are occasions, particularly in certain circumstances, when the price of wheat seems to be wholly independent of the year's production. This occurs during the time immediately following great crises, when the reduced demand entirely determines prices and the variations in the harvest result play scarcely any part. Such was the case during the depression of 1876–1878, when the circumstances were very similar to those of 1929–1931; the same thing was repeated in the severe crisis of 1893 and also in 1900. On the other hand, the crisis of 1907 did not produce the characteristic dislocation in the relation between production and price, and this is doubtless due to the influence of the weather on the year's harvest, which was relatively poor. We shall presently return to this circumstance, but mention in the meanwhile that both the "war crisis" of 1914–1915 and the "peace crisis" of 1922–1925 brought about a recurrence of these dislocations of price.

If the industrial cycles set their mark on agriculture's attempt to adapt itself to the fluctuations of demand, it is natural that it should be the years of crisis and depression which show in a particularly high

degree the dependence of agricultural production upon the demand on the part of industrial life. At other times it is the "natural" quotation which prevails unrestrictedly, but the natural quotation is in its turn a consequence of the farmers' attempt to adjust the output to the industrial cycles. It may therefore be asserted that the price fluctuations of agricultural produce are the farmers' cycle barometer, and this cycle barometer is for the most part affected by the activity of enterprise in commercial life, that is to say, particularly in industry.

Bad Harvests and Bumper Years

We have spent so long over the connection between industrial production, the price of agricultural produce, and the output of agricultural produce that the reader is surely beginning to wonder if the weather does not really play the least little part in this connection. Has the economic barometer which foretells good and bad times entirely displaced the barometer which forecasts rain and fine weather?

The answer to this question depends entirely upon the time and place under consideration. Previous to industrialization and in a country in which the yield of agriculture forms a relatively important proportion in the total production, the weather plays a leading part. But it is not so in modern times and in industrial countries. Even America, with its huge wheat and cotton production and its high quota of the export trade in agricultural produce, has long shown a tendency to develop on the lines described in the foregoing section. Only wheat cultivation was there dealt with, but cotton-growing is *more* speculatively conducted than wheat production and more closely follows the

industrial cycles, because cotton is an industrial raw material.

A study of the economic history of the United States will show us that on two occasions in the past particularly large wheat and cotton crops were the activating cause of an upward cyclic movement. The years 1879 and 1897 were bumper years in America; the crops in Europe failed at the same time, and this led to a large and profitable American wheat export which quickly improved the general economic condition in the New World. But the conditions for this boom were ready to hand; in both instances a period of doubt as to the value of their domestic currency had just been experienced; the renewed redemption of paper currency and the final abandonment of silver as coinage metal lies behind these rising cycles, which, in addition, had the usual starting-point in the industrial situation. Even on these two occasions the record crops were only important in setting the boom in motion, but not as real underlying causes of the turn of the tide.

Since that time, particularly good American harvests have several times coincided with crop failure in Europe without noticeable effect upon cyclic development. The year 1928 provided a very large North American wheat crop which was the main cause of the enormous increase of stocks in the following year. So far as the weather had anything to do with this increase, thus far climatic forces had a share in the crisis of 1929, but an analysis of the underlying causes indicates that that share was astonishingly small.

If the importance of bumper years in general cyclic development is thus not great, it is even less in the case of crop failures. It should, then, be particularly emphasized that this idea is essentially a thing of the past,

for modern agricultural methods of production have overcome the more serious risks of crop failure. Rational methods of production and storage have prevailed. Thus it can only be a question of relatively bad harvests, and it is a fact that it is impossible to detect, at least in the present century, an instance of the reduction of agricultural produce bringing on a general economic crisis. That the crop of 1907 was somewhat small was due in some measure to the weather, and to that extent this probably contributed to the curtailing of the subsequent depression.

Neither particularly good nor particularly bad harvests play, as a rule, any important independent part in the cyclic movement, and this is so because of the industrialization of the world and also in consequence of the ability of speculation and credit distribution to adjust any disturbances which they may have induced. On the other hand, it may be asserted that the *harvest*, that is to say, every year's harvest, does really play a material part in the cyclic movement because the issue of credit which every autumn brings with it leads, under otherwise favourable conditions, to increased enterprise and so ushers in the revival after depression.

Secular Fluctuations

All that has been said hitherto of the connection between agricultural production and the industrial cycles relates to the behaviour of the short and the long cyclic waves. In the discussion of these questions we have scarcely given a thought to anything beyond crises and cycles.

But there is also an important connection between the respective positions of agriculture and industry,

taking the long view. An examination of the price fluctuations of agricultural produce and industrial goods during the secular waves of fifty and sixty years is very illuminating in this connection. The prices of agricultural produce as well as those of industrial goods certainly follow a secular movement which corresponds with the fifty- to sixty-year period of total price level (see Fig. 5, page 75). But, beyond this, it is proper also to examine the relative price fluctuations of these two groups, in other words the secular fluctuations in the purchasing power of agricultural produce and the products of industry respectively. Thus it is ascertained in what degree a higher or a lower value has been set at various times upon these two groups of commodities in relation to all other commodities.

Such an investigation shows that the relative purchasing power of agricultural produce moves in close accord with the secular variation of price level as a whole, although with a somewhat delayed action. The relative purchasing power of agricultural produce was thus lowest about 1860 and 1900, and highest about 1880 and 1920. The relative purchasing power of the products of industry was naturally greater when that of agricultural produce was least, and least when that of agricultural produce was greatest. The relative purchasing power of industrial commodities thus varies inversely with the fifty- to sixty-year secular waves.

How then is this to be explained? The cause is most likely to be sought in the varying volume and direction of investment during the rise and fall of the secular wave. During the ascending portion of the secular wave, for example, between 1900 and 1920, investment shows a marked increase, but it was sub-

stantially directed to the improvement of the means of industrial production. Attention at this time was fixed on the needs of the future and present requirements were relatively neglected. In consequence of this the output of agriculture becomes relatively less than the output of industry, and the relative purchasing power of the former's produce accordingly rises in harmony with the changes in general price level, while the purchasing power of industrial produce falls.

During the declining part of the secular wave, for example, between 1880 and 1900 and after 1920, the conditions are reversed. Long-term investment is less intensive, and relatively more capital is devoted to the purpose of consumption, so that the output of articles of consumption rises, while the demand for industrial products is kept within narrower bounds. Since, even with this direction of investment, there is over-estimation of the future possibilities of consumption, it follows that the purchasing power of agricultural produce falls while that of industrial commodities relatively rises.

It may be well at this point to compare the association between agriculture and industry during cyclic waves with that during secular waves. During the short cyclic waves of about three years, which in this connection are decidedly more important than the long ones of from seven to ten years, it is the dissimilarity *in methods of production* which determines the issue. Agriculture's meagre capacity for adjustment to cyclic variations is of decisive importance in conjunction with the fact that the provision of new means of industrial production takes, on the average, longer than agriculture's one-year period of rotation. In the fifty- to sixty-year secular waves the issue is not

governed by technical properties of this kind; there the determination lies on the *psychological* plane. The increase of industrial long-term investment necessarily involves a relatively restricted development in the sphere of agriculture, while the lessening of industrial investment makes room for an accelerated expansion in those occupations which serve immediate consumption, and for agriculture first of all.

The Agricultural Crisis

Regarded from this angle the present agricultural crisis appears to admit of a simple and natural explanation. Like former crises of this kind, the present one occurs after a war period and after a revulsion from a secularly rising to a secularly falling price level. The agricultural crisis of 1880 and that of 1930 can only be understood if it is borne in mind that we have here an aggregation of disturbing elements typical both of the secular and of the cyclic wave.

Both crises occur after the formation of new means of production characteristic of the secular wave has been proceeding for nearly a decade. A relatively large amount of capital in the form of new buildings and mechanical equipment has been invested in agriculture, but the capacity for consumption has not answered expectation, and the purchasing power of agricultural produce has diminished on the average.

But, besides this, there are the cyclic changes. Industry's greater capacity for adjustment has, during the rising phase of the cycle, made possible a certain control over the output of industrial commodities, but the agriculturalists, who are far less strongly organized, have tried to utilize their greater capacity for production, due

to mechanization, by making a big turnover counter-balance the falling prices. Increased production has been encouraged by high duties and subventions. The consequence has been a constant increase in the area under crop and a constant increase of the unsold stocks on the market.

Improvement in a situation like this can only be brought about by a gradual removal of these tendencies. The excessive area brought under cultivation during the cyclic rise must be reduced and an unimpeded fall in the price of agricultural produce is after all the only means that can bring about this effect with certainty. The increase in the capital invested in agriculture, which occurred in the last decade and which is a phenomenon pertaining to the sphere of the secular wave, is automatically restrained by the diminishing profit of agriculture. To the extent to which capital finds increased employment in industry the productivity of agriculture decreases; hence, in this way too, the supply of agricultural produce diminishes and its purchasing power improves.

The connection between agriculture and industry has thus shown us a new proof of the pendulum movement characteristic of economic life. If we wish to come upon the track of the laws of this pendulum movement, we had better now consider the industrial variations and the general direction of enterprise as a starting-point, even though, in its attempt to adjust itself to the rest of commercial life, agriculture is making its influence felt on general business conditions.

CHAPTER VIII

THE PURPOSE OF CREDIT

OIL IN THE MACHINE AND THE MACHINE ITSELF

BEFORE the Great War, which in so many respects changed the opinions of mankind, it was the custom to say that money only casts a veil over economic reality. If one would perceive what really happens and understand the true nature of production, exchange, and distribution, one should not "think in terms of money".

The war was accompanied by a violent fall in the value of money, and the peace crisis by an even more sudden rise—in these years it must be admitted that the veil was transformed into a suit of armour which concealed the social structure and many of its movements. Like former war periods, this time provided an example of the risks of the credit system, risks which are always, though to a less extent, to be reckoned with in normal cyclic fluctuations uninfluenced by war conditions. But, for the most part, the war period, in this case approximately the decade from 1915 to 1925, is an abnormal period. One should not, therefore, choose this time as a starting-point in the attempt to understand the import of credit.

In this book about the rhythm of economic life we have gone back to the conception of the nature of money which prevailed before the war. We have never

from the beginning "thought in terms of money". But for this reason we are now obliged to take into consideration the inherent significance of credit in the whole structure.

In the second chapter we mentioned the giving of credit as a necessary condition of the inception of the cyclic movement. As a matter of fact, money and credit form a necessary condition also of economic progress. The system of barter is founded on a purely stationary conception of the life of the community; nothing is contemplated but the goods actually in existence and the possibilities of exchanging them one against another. In the credit system time and change are brought into industrial life, for quite the most important property of credit is its capacity to take account of future commodities not yet on the market.

In the system of barter and of primitive money system it is intended that the communication between the parties to the bargain shall be as unhampered as possible; the developed credit system is concerned to organize the relations between the present and the future on the most expedient lines. Economic progress, like the prosperity phase of the cycle, which indeed is only a shorter and more intensive period of progress, necessarily, therefore, adopts the form of credit organization. To some extent it is only a form, but sometimes and in some ways credit is all that is tangible in economic variations. Credit is therefore the commonplace of the industrial system, but it is also the magic formula which brings factories and machines into being. Credit is both the oil in the machine and the machine itself.

Money in a Static Community

It is not to be supposed, because credit is a condition of economic progress, that money and credit do not exist in a static community. We must go far back in time or to very primitive races to find instances of the system of pure barter. The need for a means of payment and of a *measure of value* has everywhere made itself perceptible, and the most varied things, from cowries to cattle, and from precious stones to immovable boulders, have been used for this purpose.

By the use of such media in barter a scale was established to which all values could be referred. But beyond this there was obtained by the employment of different forms of tokens of exchange, or, if you like, of money, a *guardian of value* which, more than most other commodities, withstood the wear of time.

People soon began to find new and better media of exchange. So long as the man who owned a hundred oxen could simply be said to "be worth" a hundred oxen, when an ox was a generally accepted monetary unit, they had scarcely approached the idea of the monetary system. But so soon as other more precisely defined types of currency were introduced, they began to perceive the nature of money as a medium of exchange, which should not be confused with wealth.

It was the precious metals which came to supersede all other kinds of money, since they united in themselves all the qualities desirable for that purpose. They are rare, and their extraction requires a considerable apparatus, so that their production can be supervised. They are homogeneous in composition and very durable, and are suitable for moulding in accurately measured quantities, that is to say, for coinage.

Thus the precious metals, silver and gold as well as copper, became the standard material for the State coinage, which right up to modern times has been the only legal tender. Princes or States struck coins, and in doing so assumed responsibility for the constancy of value of the medium of exchange. This implies that the value of the coin as metal should be kept in an approximately unvarying relation to all other commodities taken as a unit. The purchasing power of the coin was, in other words, to be kept constant. But a number of instances of debased coinage, with consequent depreciation of the value of money, show that this rule was not followed.

A great deal of this debased currency was coined to provide revenue for the prince or the State. It was thus a question of compulsory taxation of a kind similar to that which the whole world suffered during the late war. But it is questionable whether this adulteration of the coinage metal with a simultaneous increase in the amount of currency struck, was not a more or less conscious attempt to accelerate the formation of a new means of production. Scarcity of the medium of exchange must act as a brake upon enterprise, and an inflation in one form or another often leads to a transference of purchasing power with a view to providing for the needs of the morrow. If this was so, these irregularities involved the first attempt to make use of the *value-creating* power of credit.

Money in the Progressive Community

In the static community money is important only as the measure and the guardian of value; in the progressive community a new function is added in

that, there, money or credit becomes also a creator of value.

During the period of transition from the stagnant Middle Ages to the rapidly progressive era of industrialism the need for credit was beginning more and more to make itself felt. Awakened enterprise was demanding more and more saved-up capital with a view to the improvement of the provision for the future's needs. This might partly have been brought about within the bounds of domestic economy because the workmen were supported by those of the employers who possessed farms or were able in other ways to supply them with provisions. To some extent the coinage system laid the foundation for this formation of new means of production, but that did not suffice to satisfy the ever-increasing demand for credit.

There is an English proverb which says, "Where there's a will there's a way". This time in fact, there were two ways; they led to bank-notes and small change. The banks, which were accustomed in the seventeenth century to accept precious metals and valuables on deposit, gave by way of receipt a deposit certificate for the amount. These receipts came to be used instead of currency for making payments, and the banks themselves found that they could without risk lend money in the form of deposit certificates for which there was no equivalent of actual deposit in the bank. In this way the bank-note was invented, which enables the bank to advance to the entrepreneurs the return which he expects from his contemplated undertaking. This supply of credit by the banks gives new wings to the formation of new means of production, and the development of the cheque system has also increased the flexibility of our facilities for payment.

The industrial revolution at the end of the eighteenth century was thus preceded a hundred years earlier by a monetary revolution which satisfies one condition for technical and commercial development.

Right up to the nineteenth century silver was decidedly the most important coinage metal. But, with rapidly increased gold production, gold reached an equality with silver and in the end definitely overcame its rival. For a time there was an attempt to stabilize the relative values of the two coinages, but silver soon fell in value owing to an extraordinary increase in its production. For this reason banks and private individuals hoarded gold coin in their safes, as speculators, during the inflation in the war years, laid up stocks of those goods which especially appreciated in value. The result was a scarcity of currency, and in the end one country after another resolved to abolish silver as its principal coinage. Gold alone was recognized as a gauge of value, and silver, like copper, was relegated to the position of small change.

Thus the complete system of the gold standard was arrived at. The gold coin, no matter who strikes it, is the measure of value; the amount of gold in the coin determines its purchasing power. Silver and copper coins, which are only struck by the State, are of less than their face value; the metal in a shilling at the end of 1931 is barely worth 20 per cent of its face value.

That is the coinage system which, at the outbreak of the Great War, had prevailed for a century in England, half a century in France, Germany, and Scandinavia, and fifteen years in the United States. In most countries the gold standard was thrown out of gear during the war, and there was an absolutely unlimited

paper currency standard, in consequence of which the rising price level kept pace with the rising quantity of notes.

After the peace crisis and a shorter or longer period of adjustment, all the leading countries some years ago had returned to the gold standard, and gold was once more the universal measure of value. But the crisis on the international money market in 1929-1931 has forced many countries again to abandon the gold standard, thus reverting to irredeemable paper money as measure of value. As in the present chapter we are describing the rôle of the monetary system in *a close community*, that is to say, in a single country, leaving international relations until the next chapter, we accordingly lay stress only on one, the less important, side of the meaning of the gold standard.

Since during the nineteenth century the issue of notes and control over the monetary system has been concentrated in a central national bank, it is the directorate of that bank in whose hands lie the decisive weapons of monetary power. Of these the most important is certainly the right of the central bank to determine the general discount rate which indirectly regulates all other rates of interest. The reasons for the changes of the official discount rate are, in a close community, to be sought in the relation of the supply and demand for purchasing power. The central bank has thus the same function with regard to the money market as the Stock Exchange with regard to the stock market, namely, that of fixing an official quotation.

But the central bank has also another besides this purely formal function; it must take care that the value of money shall not undergo great or sudden changes. The question *how* the central bank performs

this function we will reserve for the last section of this chapter. We shall only point out here the *immediate*, legally defined reason for this monetary policy.

It is laid down in the banking laws of all countries that the ratio between the gold reserve and the note issue shall not fall below a certain figure. This stipulation is founded on the unhappy experience of all times of the drop in the value of money which is occasioned when the amount of money is so rapidly or so greatly increased that production cannot nearly keep pace with it. If there is more and more money—in this case, paper money—in circulation, but the quantity of goods remains unaltered, more and more notes must be offered to buy the same amount of goods; in other words prices rise. It is the old law of supply and demand which thus takes effect in the realm of money.

Such a development, involving the continued falling of the value of money and consequent injustices and disadvantages for the members of the community, could be counteracted in the following manner. The public, when it begins to doubt the value of the notes as a medium of payment, can use its legal right to exchange them at the central bank against gold coin. If this demand for exchange were to assume large proportions, the reserve of gold would be diminished to such an extent that the ratio which, as we have just stated, is required by law between gold reserve and note issue would be nearly reached. To check this tendency the bank can avail itself of but one resource: it must raise the discount rate.

If now, in consequence of a considerable raising of the bank rate, the price of purchasing power suddenly rises, borrowers take fright, and industrial life goes through a crisis with consequent reduced demand for

credit and falling prices of goods. It follows from this that the amount of paper in circulation is reduced, and a safe distance has once more been established from the minimum ratio between gold reserve and note issue required by the banking laws.

Thus, in a close community, bullion is important solely and exclusively as a guarantee against serious deterioration of the value of money. But how little this guarantee is worth appears most clearly from the circumstance that, on the outbreak of the Great War, almost all the central banks put the banking laws out of action, as England, the Scandinavian countries, and Japan have done again in 1931. Although it is stated on the notes that they are redeemable in gold, this undertaking was cancelled by a stroke of the pen. It was no longer in the power of the public to force up the bank rate and the consequent deflation, and it is questionable whether, under war or crisis conditions, anyone wanted to insist on such measures. All the talk about the public's right to withdraw gold was, in fact, merely for the sake of argument.

It can thus be said without hesitation that it is very doubtful whether in a close community the gold reserve has really any justification for its existence; when occasion arises for it to come into play and enforce financial measures, it goes by the board. It will be shown in the next chapter that nowadays the importance of gold lies almost wholly on the international plane.

Credit and Time

In the static community saved-up purchasing power can only be directed to the renewal of worn-out means of production or to loans for consumption. It is there-

fore intelligible that the mediaeval Catholic Church strictly forbade lending at interest, for the *productive loan* had in those days scarcely any real significance.

The idea that time is money, that something should be paid for the opportunity to create new means of production, is the distinguishing mark of the modern era. All the exposition of the connection between loan rate and real interest or actual profit to which we have referred on several occasions is thus essentially a theory of the state of things in the modern community. The loan rate, as the entrepreneur's entrance fee to the realm of capital-creation, is both the cause and the effect of economic progress and cyclic upward movement.

What does credit signify in the industrial community? That we may answer that question from the monetary point of view let us examine the course of trade during a period of prosperity. When the banks extend credit to the entrepreneurs they thereby express their *confidence* in the ability of the enterprise to complete in due time new means of production. These means of production are expected to be capable of producing at least such a quantity of goods per unit of time as will offset the credit expended. Thus, when the means of production come into operation, balance will have been restored between the quantity of goods and the quantity of money.

That is the credit givers' often unconscious motive for lending to industry. What is it that really happens? As has been mentioned earlier, the entrepreneurs will employ more workmen, buy more raw materials, and set work in motion on the new means of production. The increase in the total of wages paid brings about increased demand for articles of consumption in addi-

tion to the entrepreneurs' increased demand for raw materials. The consequence is a general advance in prices.

But this rise in price level involves a diminution of purchasing power for all persons with fixed incomes. If the cost of living rises by 10 per cent, a person whose annual income is £500 will, in fact, find his income reduced to £450. The cancelled £50 constitute a tax which is imposed by the credit giver and the entrepreneur, by which a large part of the interest charges of the new means of production are paid. Instead of saving voluntarily and depositing money with the bank, these people find themselves in the position of savers by compulsion. The rise in prices has, to be sure, other effects which stimulate enterprise, of which the chief is the increasing turnover on the market, but the connection which we have just mentioned between savings and the formation of new means of production is at least as important.

But it has been possible to create a boom without the accompaniment of any noticeable rising of the level of prices; such was the case, for example, during 1928 and 1929. The question is whether the entrepreneurs on this occasion did not need an extra large contribution from savings. If we enquire into the last boom we shall find it characterized by a great increase in production, no very great increase in the number employed in industry, a cutting down of the costs of production by the mechanization of manufacturing processes and a temporary stabilization of selling prices through monopolistic agreements. Thus, from the standpoint of production, there was no occasion for an increase in the level of prices.

How in that case did industry come into posses-

sion of the savings necessary for the creation of new means of production and for the increase of production itself? The answer is probably as follows: Whereas a boom resulting from a brisk advance in prices may to a great extent be supported by enforced savings, in a boom unaccompanied by inflation there is exceptionally free access to *voluntary* savings. The profits of enterprise are increased by rationalization with extraordinary rapidity, and a large section of the public desires, by the investment of all its spare purchasing power in industrial securities, to obtain a share in the expected improvement in capital value. At the same time the entrepreneurs contrive to prevent this intensified saving from resulting in a diminution in the consumption of the products of industry: by means of the instalment system they enable the consumer to dispose in advance of his future income. The producer or the dealer assumes the function of the bank, and provides loans for consumption which are to tide over the lack of demand for the products of industry that would otherwise result from the locking up of purchasing power in industrial securities.

If we examine this association between production and consumption, saving and investment, it is easy to perceive why the last American boom combines features which have never before been simultaneously observed: brisk rising of production without increase in the number employed, brisk rising of profits without raising of price level, brisk increase of saved-up capital without reduction of consumption. Like all booms this development also carries within it the germ of a crisis, for the further one goes the wider becomes the difference in level between the income streams which before the advance were running at an equal height. Just

as surely as the rise in prices, the process we have described in the end defeats its own object. For if all parties are in course of time to play their parts in the drama, the process must be constantly accelerated.

The Financial Crisis

Whether the cyclic advance be of the type which results from a general rise in prices or of that which is characterized by the rationalizing of production is not, in the end, of decisive importance. For in both cases it is confidence in the continued rising of the interest on capital, or profit, which is the actuating spring of the whole movement, and in both cases it is the constantly diminished margin between loan rate and real interest rate which forces on the crisis.

We have already described this process from the standpoint of enterprise, and we will now append a survey of the financial crisis from the monetary point of view.

The *first* sign that a boom is nearing the end usually appears to the banks in the form of a deterioration in the *quality of the borrowings*. Whereas earlier it was possible to grant the desired credit without hesitation, it now becomes necessary to proceed with more caution, and the raising of the rate of interest is already desirable for this reason.

The *second* sign of the approach of the crisis is a sharp and accelerated increase in the *quantity* of the borrowings. More and more branches of industry are feeling a lack of liquid assets owing to increased competition and rising costs of production, and help must come from the banks. There is a clear understanding on the part of the commercial banks in general of the

risks attached to a sudden increase in their outstanding loans after the boom has been in progress for some time. It is not at that point possible to justify the granting of loans on the excuse that they are to facilitate new enterprise. Most loans are rather to be regarded as the provision of credit for speculation in goods or securities, or else as support for less solvent borrowers.

The *third* and decisive warning is derived not from the commercial banks but from the central bank. During the cyclic advance the bank rate has been raised, often repeatedly. These advances have generally been occasioned by rises in the market rates according to the price of purchasing power in the open money market. But each time there is a rise in the bank rate—by custom at least one half per cent and usually one per cent—this gives the signal for a fresh advance in the market rates. If we are considering only the conditions within a close community, it almost invariably happens that a last decisive raising of the bank rate precipitates a crisis of the psychological kind. Just because the bank rate does not, like the market rates, creep up gradually to a higher and higher level, but suddenly changes the whole situation, the effect on an already strained money market is decisive. The financial crisis, and with it, at the same time, the general crisis, is an accomplished fact.

Credit and Capital

Before leaving the monetary side of the crisis we will take up a question which is the occasion of much perplexity, that of the connection between saved-up capital, the resources which are collected in the banks,

on the one side, and real capital, chiefly the means of production, on the other.

This connection during a boom is best elucidated by examining the investment of purchasing power on the capital market. There is no difficulty in explaining what happens when savings are tied up in share or bond issues. On the other hand, the question has been much debated whether, by lending, the banks create buying power or only transfer existing savings to the entrepreneur.

This question is typical of the reasoning which attempts to apply the timeless rules of the economics of equilibrium to short-period variations. *In the long run*, it is unthinkable that savings and investment should not coincide, but during short periods—and an upward cyclic movement of two years' duration is a short period—there is no such static equilibrium. The whole essence of credit is confidence in the future, all capital value implies the capitalization of income reckoned in advance. When it is supposed that the "available savings" which are "conveyed" to the entrepreneurs are nothing but a bundle of papers which are transferred through the instrumentality of the banks from pocket-book to factory, the connection is very greatly simplified.

The banks do create credit—there is no question about that—but the precedent conditions of this being so are, first, assurance that the savers, whether voluntarily or under the compulsion of high prices, will assume the burden of waiting, that is, of not consuming, and secondly, confidence in the entrepreneurs' ability so to employ the purchasing power thus obtained as to provide at least the prevailing normal interest on capital. The connection between savings

and investment is thus not of the mechanical timeless kind which is comparable with the posting of an item from the cash-book to the ledger by double entry. The relation between invested savings and the real capital of which they lay the foundation is dependent upon the changes which constantly accompany the passage of time and upon the estimation of these changes which prevails at each juncture.

It is precisely the same line of thought which appears in the animated discussion of the question whether Stock Exchange speculation consumes capital. In this connection it is well first of all to recognize that the question has not been happily formulated. For, naturally, the giving of credit against securities consumes no *real capital*—factories, goods, and so on, so that the point is to what extent speculation consumes credit or spare purchasing power.

This last question is, even so, absurd enough, for when, between the middle of 1926 and the crisis in the autumn of 1929, the amount of the American Stock Exchange loans rose by five thousand million dollars, this sum was nothing but an issue of credit. What, however, is chiefly meant by the question is, to what extent legitimate industrial life, as it is called in the sense chiefly of activity of enterprise, is put on starvation diet by the suppliers of credit in consequence of the increase in Stock Exchange loans. Since it can be established that the value of the internal capital issue during the same time rose by 30 per cent and production by 15 per cent, any such suspicion is refuted.

But it does not follow from this that the violent expansion of credit was without risks. For that to be so the money market must consist of separate chambers which, like water-tight compartments, never come into

contact with one another. But this is not the case. On the contrary, credit is the most mobile of all commodities and flows unchecked from one cistern to another. This does not become obvious until the crisis, when the consequences of the expansion of credit take effect on *all* markets. The inflation of the Stock Exchange loan market was therefore in actual fact a *general* inflation. The only reason why many had difficulty in believing this fact was that there was no advance in prices on the commodity market. But, as we have already seen, enterprise had applied a new method to the increasing of profits; instead of raising the selling prices a reduction in the costs of production had been attained through rationalization. While a rapid rise in the price level of goods is the mark of an inflation of the *former* type, an extraordinary increase in stock prices is the mark of an inflation of the *latter* type. Common to *both* is a vast increase in credits which, proceeding from different quarters, leads to the same result—the crisis.

A testimony to the soundness of the position here adopted is furnished by the occurrences on the American capital market during the early months of 1930. After the most comprehensive Stock Exchange crisis known in history, the depression was beginning to be more and more pronounced, when the authorities determined immediately to try to stem the tide. To this end the principal measure was a monetary policy of low discount rates in order thus—so it was believed—to stimulate new enterprise. The only result was that Stock Exchange speculation flared up again for a couple of months to be followed by an even more severe depreciation of industrial capital. The commercial banks, mistrusting the situation, only lent money

in the form of fully secured Stock Exchange loans, and the only undertakings that obtained fresh access to credit—chiefly in the form of new capital issues—were those which during the preceding boom had been most strongly developed and thus most needed to be levelled down (see Fig. 4, page 59). The attempted credit policy only brought about a temporary continuance of the boom tendencies and culminated in a definitive and aggravated depression.

When we pass on to the monetary aspect of the depression, it is once more the relation between the long and short views which chiefly claims our attention. In bad times the most important contribution to the cycle picture from the sphere of finance is the growth of deposits in the savings banks and commercial banks. Especially towards the end of the depression, these deposits increase, while the entrepreneurs' demand for credit is as negligible as the banks' willingness to take new risks.

It has consequently been asked how it is possible that there should be savings in the banks without any real equivalent. Money, being only a means of exchange, must represent actual commodities. This line of thought is attempting, as in the previous instance, to apply the rules of long-time results to short-time fluctuations. The determination of the savers not to consume, that is to say, to save, leads to an increase in the banks' supply of disposable purchasing power, but for a short time no direct connection, such as will soon grow up, need be established between thrift and investment. Yet there must *in the long run* be a correspondence between savings and investment, for the will to save ceases unless the formation of new means of production enables saved-up capital to earn interest.

In this connection the importance of commodity stocks during depression has with justice been pointed out. The stocks of staple commodities increase, like the bank deposits, during the falling part of the cycle, and one may say that the savings which in good times enable the entrepreneurs to purchase raw materials, in bad times enable the banks to finance the storing of the unsaleable raw materials. Thus we would say that the commodity stocks constitute the concrete equivalent of savings during a falling cycle, but this is not to be regarded as a real state of equilibrium. For during short periods available purchasing power and the demand for it need not necessarily coincide.

Banking Policy

In what has gone before we have very briefly stated the formal functions of the central bank in so far as these affect conditions within the country, and have also touched upon the methods of monetary policy. It seems nevertheless right to devote somewhat of closer attention to the central bank's policy within a close community before passing on to international relations.

For many reasons we choose as an example the American banking policy after the Great War. The United States, more than any other country, may be regarded as a close community, for their foreign trade plays an insignificant part in relation to their domestic production, while their accumulated gold reserves have made their country financially independent. One might say outright with illustrative exaggeration that the last decade had exhibited an American banking policy pursued as in a close community, while most other

industrial countries adapted themselves in their international financial policy to that of America.

What, then, have been the guiding stars of American banking policy? One may say that there have been two: the traditional duty of keeping the value of money practically unaltered and the desire to maintain good times. Owing to the gold surplus after the war it was unnecessary to consider the formal regulations as to the ratio between the gold reserve and the note issue. The history of the last decade illustrates the difficulty which arises when it is desired to carry through such a programme in opposition to the forces of progress—whose manifestations are often misapprehended—and under pressure from a variety of political factors.

The two principles came profoundly into conflict during the peace crisis of 1920, for the process of maintaining the value of money inevitably provoked a severe depression. Accordingly in the following year there was an attempt to establish in two respects new rules for the exercise of banking policy. In the first place, it was resolved to have recourse, in addition to the wholesale price index, to an index of the volume of industrial production, in order to judge whether inflation was present or not. When prices rose without any increase of production it was considered that the credit granted had been directed to speculative ends and that a restriction of credit, that is to say, in effect a raising of the discount rate, was called for. In the spring of 1923 a crisis was brought about by these means which otherwise would hardly have been called for before the autumn of the same year at the earliest.

In the second place, the methods of financial policy were extended so as to include, besides the changes of the discount rate, the deliberate buying and selling

of securities in the open market. When it is desired to stimulate the granting of credit, the discount rate is lowered and at the same time securities are bought, by which means more credit is brought into play. When, on the contrary, it is desired to restrict credit, the discount rate is raised and a part of the central bank's holding of securities is sold (Fig. 8). To this operation should be added the part played by bank acceptances

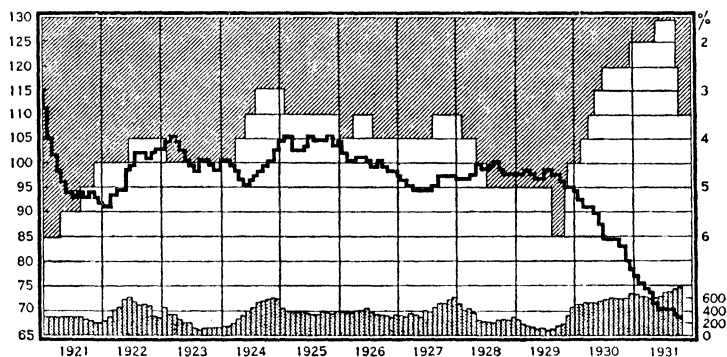


FIG. 8.—AMERICAN BANKING POLICY

The shaded surface corresponds with the discount rate of the Federal Reserve Bank of New York. An increase of its area indicates increased rate, a reduction reduced rate. Scale on the right (per cent).

The curve shows the variations of the wholesale price index. 1926=100. Scale on the left.

The columns correspond with the Federal Reserve Bank's holding of securities in millions of dollars. Scale on the right.

rediscounted by the central bank. When the discount rate is raised, a higher rate must be paid for rediscounting, and as the volume of rediscounted bills is especially large during a boom, such an extra charge becomes quite considerable and leads to a reduced demand for credit.

The American Federal Reserve system expected a great deal from the operations in the open market, but it cannot be said that the reality came up to the ex-

pectations. On two occasions, in 1924 and 1927, it was desired, partly on political grounds, rapidly to increase employment in industry, and the discount rate was accordingly lowered simultaneously with the purchase of large blocks of securities. The result on both occasions was a largely increased speculative holding by the public of securities and goods.

The motive of the liberal credit policy during the latter half of 1927 is of especially great significance, for this policy aggravated in a disastrous fashion the crisis of 1929. Since the majority of the members of the Federal Reserve Board was convinced that the exclusive aim of banking policy should be to prevent any considerable variations in the wholesale price index, it was thought necessary to intervene with a reduction of the discount rate, although Stock Exchange credits had for long been increasing. As shown in Fig. 8, the wholesale price level had fallen by 10 per cent in the last eighteen months, and it was not realized that this fall was due to rationalization, to the reduction of costs. Thus no deflation had occurred. When the discount rate was lowered and securities purchased, this led to an enormous increase of stock market loans, and this inflation of the credit at the disposal of speculation produced in its turn a serious aggravation of the disturbance of equilibrium commonly associated with a boom.

Thus the American financial policy before the crisis of 1929 indicated the following facts. If it is desired by means of banking policy to avoid a needless aggravation of cyclic fluctuations, the policy must be based on the fact that it is the interest on capital, the profit of capital, which chiefly is governed by the discount rate. To suppose that the variations of price level indicate

the whole state of industrial life is to risk misjudging the situation during a period of rationalization. It may be definitely asserted that a banking policy which exclusively occupies itself with the constancy of price level runs the risk, through this one-sidedness, of inducing more severe crises and more violent changes of the price level than a policy based upon the *total* amount of credit granted and its relation to production.

We have now come to the end of our description of the influence of the credit system upon the cyclic fluctuations in a close community. Since the granting of credit is a necessary condition of progress and of every cyclic revival, it is evident that this influence must be of the most far-reaching kind. But because the banks have a nominal freedom to extend credit to the utmost that is legally possible and thus to extend the duration of a boom, the technical and psychological factors that limit this freedom are not to be underestimated. The history of cycles shows plainly enough that the influence of banking policy is not absolute. The crisis can be delayed for six months, possibly for a year, and its consequences mitigated or aggravated, but not even during the inflation of the war years was it found possible to evade the forces which compel a reorganization of industrial life after a period of advance has upset its equilibrium.

CHAPTER IX

INTERNATIONAL INTERDEPENDENCE

DAMS AND RESERVOIRS

THE time has now come to drop our last assumption limiting causal association to a close community. The three previous assumptions depended upon the conditions in a single country, but that which we have now at last to investigate is the connection, and chiefly the cyclic connection, between different countries.

The Question at Issue

The problem of international interdependence is both simpler and more difficult than that of economic interdependence within a close community. It is simpler because we are not first of all concerned with internal fluctuations but with the relations between countries that may be regarded as constant units; but it is more difficult because we have not long had any means of measuring the spread of cyclic fluctuations from country to country.

These two circumstances have led to the theory of international communications becoming the private territory of the classic and static doctrine. It is thought possible to apply here the supposedly simple law of barter. Country A exchanges goods and services with

country B, and the *circulation* between them is the only thing that needs, in the first place, to be regarded. No variations in the provision of the means of production, no changes in the relation between production and consumption, no dislocations in the apportionment of income, in a word, no time-determined fluctuations, need be considered as a preliminary.

Just because we still know very little about the actual effect of international relations upon the cycles, it is easily understandable that more conservatism has been shown in this than in any other of the various fields of economics. Even to-day we usually argue in this way: "Assuming that country A ships goods to country B, which sends gold in exchange. . . ." How this causal association proceeds in time is still unexplained, and this, indeed, chiefly because these international connections assume a complete knowledge of cyclic and other changes within the different countries. But even though we now know a part of the real time-determined reactions in the close community, this knowledge is perhaps still too scanty to serve as the foundation for an international superstructure.

A study, without assumptions, of economic life demands, however, that the essential phenomena be discriminated and that these be treated first. The essential element connecting the development of the industrial countries is their *simultaneous* progress, their more or less equally apportioned increase in the formation of new means of production. More and more of the day's possibilities of consumption have been found transferable to provision for the needs of the future, more and more of the inhabitants of the industrial countries have definitely left behind them the minimum of existence as a standard of living.

The growth of new means of production which has made possible this progress in the age of industrialism has not gone forward evenly; cyclic waves of varying length have set their mark on the secular advance, which, in fact, is brought about and developed in and through each new upward cyclic movement. It is characteristic of this development that it has been common to all industrial countries. It is not only within one country that the advance of enterprise is depicted by parallel curves; the cyclic movement in different countries has followed the same chronometer.

Of course, there have been dislocations, so that in one country the crisis has arrived some months later than in another, but these differences belong to the secondary side of the question. That this synchronism prevails is a consequence of the mode of action of the international money market. By means of the connection which is maintained between international consignments of goods, capital, and gold, a constant balancing process goes on, which levels the relation between supply and demand for purchasing power in different countries. A surplus of purchasing power cannot prevail in one leading industrial country simultaneously with pronounced scarcity of capital in another—even a great deal of special political disturbance can hardly put this rule out of action for more than brief periods. It follows from this that each revival, with its constantly increasing need of saved-up capital and the other factors of production, is characterized by a growing international scarcity in this respect, and that the crisis begins in the country in which the scarcity is, at the moment, greatest.

The classic doctrine of international economic relations habitually ignores this fact in a quite astonish-

ing fashion. For according to that conception only the *differences* between countries are regarded; it is only the dissimilarity in the economic situation in different countries that is taken into consideration, and the assumptions of the economics of equilibrium permit no other treatment.

But this objection does not mean that the part of international interrelation which has been dealt with by the economics of equilibrium was unnecessary or unimportant. We must *also* and by all the means at our disposal explain these marginal changes, but not until the essential international collective changes have been cleared up. The question is, then, how the two attitudes of the economics of equilibrium and of time are to be reconciled, for a complete explanation requires that both sides be considered.

The answer to this question must follow the same lines that we touch on in the second chapter. Instead of explaining how the interrelation will develop in an instant or in the long run, we must sharply differentiate between the international mutual reactions in respect of periods of different length. Instead of saying, "If country A increases its imports of goods from country B, the consequence will be . . .", the matter should be treated as determined by time; one should make it clear whether one is dealing with seasonal, cyclic, or secular periods, and which of these can be regarded as coinciding with the section of time which, consciously or unconsciously, is contemplated by the classic argument.

The form of the question in an enquiry into international interrelation must thus take cognizance of two factors which are ignored by the economics of equilibrium; in the first place, we must differentiate between universal and local variations; that is to say,

between the variations common to all industrial countries and those which depend on the differences in the situation as between different countries. In the second place, the process of reasoning must be time-determined, which involves defining always the periods which are under consideration.

International economic relations are essentially maintained in four different ways, namely, by emigration and immigration, by trade in goods, by transference of capital, and by consignments of gold. We will examine these different phenomena in turn, at the same time differentiating between the conditions during periods of different length.

Emigration and Immigration

In attempting to explain the causes of the varying extent of emigration, we should first of all distinguish between forces of two different kinds, the factors in the emigration country which occasion emigration and the factors in the immigration country which influence the extent of immigration. Thus, there occurs an "absorption" of labour into the immigration country and, at the same time, an "extrusion" of labour from the emigration country. Absorption and extrusion operate with very dissimilar force at different times, and the point is to determine when the one factor or the other has preponderated.

In the annual period we know that autumn and spring are characterized by the liveliest traffic in the labour market, both within each country and internationally. Just as industrial activity is greatest in autumn and spring, so it is at these times of year that labour flows most freely from one occupational field to

another. If, for example, we consider Swedish emigration to North America, the question arises whether it is the increased possibilities of employment in the new world or the impaired prospects at home which causes the expansion of the passenger lists each autumn and each spring. The right answer is, indeed, that such motives hardly arise within the short period of a year, but that emigration increases at these times of year because industrial life—especially agriculture—completes at those times one economic period and begins another.

In the cyclic period the conditions are quite different. Here it is actually a question of “absorption” into the more progressive country and “extrusion” from the less favoured nations. If we examine the statistics of immigration into the United States, which are of the greatest significance, we shall find that immigration follows the cyclic waves. But it also happens that immigration shows a tendency especially to increase during the years preceding the severest crises, during the most pronounced booms. Thus we find distinct immigration maxima in 1873, 1882, and 1907, and equally distinct minima about 1861, 1878, and 1897. While the long cyclic waves have an average duration of about eight years, we may also speak of a cyclic wave of twice this length which would stand in the same relation to the long wave as this long wave to the short cyclic wave. Now, judging by the American immigration statistics, the incidence of immigration seems specially attached to this period of about sixteen years’ duration. Nor is this surprising, for inasmuch as the short cyclic wave is based upon short-term investment and the long wave upon long-term investment, it is easily explainable that an investment of even longer

term operates with full force upon the transference, necessarily a slow-moving process, of labour from country to country. It follows from this that emigration during cyclic periods is chiefly dependent upon *absorption* into the especially progressive country and that extrusion is of secondary importance. It should, therefore, be possible to say that there is a reservoir of labour willing to emigrate in the emigration country, and that this reservoir is tapped when the economic situation in the immigration country is favourable.

When finally we come to the examination of the secular wave we perceive that the forces which promote immigration and emigration change character in the same way as was the case in the question of the relation between loan rate and real interest rate (Chapter II.). In dealing with periods of several decades duration, the distinction between "absorption" and "extrusion" can hardly be maintained. The country which promises relatively the greatest profits from enterprise attracts in the long run more and more labour, but this fact may also be expressed by saying that countries with relatively poor prospects of profit especially tend to unburden themselves of their population. As regards the secular fluctuations of emigration, the European emigration to North America is of dominant significance. But the industrial pioneer period in the United States, which began in the middle of the nineteenth century, came to an end with the Great War, and it is the untouched natural resources or relatively sparse population of other lands which now attract emigrants.

Foreign Trade

While the international mobility of labour can to some extent be treated as an isolated problem, the movements between countries of goods, capital, and gold stand in the most intimate relation with one another. We shall, however, deal with these questions successively, touching first only on trade in goods, then transferences of capital and trade in goods, and finally gold movements, transferences of capital, and trade in goods.

Foreign trade has, in each country, its seasonal variations. In Sweden exports in particular show a marked increase during the warmer months (see Fig. 3, page 37, with regard to the export of timber and wood-work), but taking it altogether it is characteristic of all countries with large exports of raw material that these are concentrated in certain months. Foreign trade in manufactured goods is, on the contrary, more equally distributed over the different times of year, even though spring and autumn, as with production, are the busiest times.

This unequal distribution of exports and imports entails the need for credit in one form or another to cover temporary shortages in the balance of exchange. Like the business relation between two persons or two firms, the relations between two countries are characterized by the principle of equilibrium; like is exchanged with like. But the weights on the two scales are constantly changing, and this not only in quantity but also in kind. Goods are exchanged against goods, but when a country imports more goods than at the same time it exports, there must be a reservoir of other means of compensation to meet the foreign demand.

When we come to the cyclic period, a certain leveling out has taken place between import and export; in the annual settlement period the temporary seasonal disturbances have cancelled each other, and the reservoir of other means of compensation, that is to say, the other entries in the balance of payments, has been replenished. But this does not exclude the existence of disturbances of equilibrium of longer duration.

Before these are examined, however, the total variations of foreign trade should be studied. Both import and export rise during prosperity and fall during the depression, but it is a fact frequently observed that foreign trade is a very poor measure of cyclic change. If employment in industry be taken as the measure of the cycle, industrial production shows movements which foretell the fluctuations of employment, while it is, on the contrary, long after the changes in the volume of employment have occurred that foreign trade exhibits corresponding variations. This is in no way surprising, for foreign trade in raw materials and partly manufactured goods must on the average be based on longer contracts and include larger consignments than the corresponding domestic trade which is immediately affected by fluctuations in demand on the part of the entrepreneurs. In this circumstance we have further confirmation of the fact that it is the initiative of the entrepreneurs more than the attitude of the consumers and of trade which governs cyclic development, even though it is the mass of savers and consumers who in the end, that is to say, at the crisis, have the last word.

In passing from the total fluctuations to the differences during the cyclic period between imports and exports, we return to the domain of the economics of equilibrium. But in actual fact the discussion there

relates to conditions arising partly in the cyclic period and partly in secular periods. At the same time, we must take cognizance of the changes in the remaining entries on the balance of payments and finally try to modify the result by attention to the fundamental factor—the formation of new means of production in each country.

We have no occasion here to set out such a point of view, nor, unfortunately, the space to reformulate this part of the classic doctrine on the lines of the economics of time, for such an attempt would exceed the scope of this general survey. Only in one respect we may go a little further than the above suggestions, and that is with regard to the causal association lying behind the fluctuations of foreign trade. At the same time, we may also cast a glance at the bearing of secular waves in connection with foreign trade. Such a survey, however, will be most appropriate after one more of the international economic points of contact has been mentioned, namely, the transference of capital, for it is just the causal relation between the transference of capital and the transference of goods that has occasioned so much contention.

Capital Movements

A country may not only receive goods from another country, it may also acquire the means to produce new commodities within the boundaries of the country itself. Such a transference of purchasing power for transformation into stable real capital is the gist of long-term international transference of capital. By long-term investments, then, are meant such as are tied up in bonds or long-term deposits. But even short investments may bring about an increase of real capital

in the capital-importing country, for even if these transferences are in the form of deposits at short notice, they have the same effect as long-term investments in the event of their being continued for a longer time. When English short-term credit crossed the Atlantic during 1928 and 1929, superficially regarded this involved only an increase in the American Stock Exchange loan. But, in fact, it supplied the American entrepreneurs with a great deal of saved-up capital through the carrying over of short credit. And the German financial crisis of the summer of 1931 can, to a very great extent, be referred to the extensive German short-term borrowing for permanent investment in industrial and commercial projects.

When during a certain time a country imports more goods than it exports, a strong demand will prevail for foreign bills with which the importers have to pay their suppliers abroad. Now, if the rate of exchange of the country in question depended solely on the supply and demand of bills, it would in such a situation soon fall in value in comparison with the foreign rates of exchange. To avoid this risk the central banks hold a reserve of foreign currency assets. In Sweden this reserve of currency diminishes during the winter months when the export of staple goods is restricted, and increases during the summer and autumn when foreign countries pay for its exports. Reserves of securities accordingly show a seasonal variation which almost coincides with the seasonal variation of exports.

The cyclic fluctuations of the movements of capital are of a far less definite character. It may as a rule be asserted that capital is attracted to the country in which enterprise is most active and the prospects of profit appear most favourable. A high rate of interest

and the expectation of capital appreciation are the actuating springs of capital export both on long and short term. As the boom produces increased turnover, so the total movements of foreign capital rise sharply during good times. But the country which, like the United States in 1928 and 1929, promises the highest interest and the greatest future profits becomes the destination of the relatively largest share of capital export. Such a country becomes the focus of the international period of prosperity.

As we approach the secular fluctuation of capital movements, the motive for international transference of capital becomes more and more defined. When it is merely a question of balancing the seasonal variations of foreign trade, no special explanation is required, but the movements of capital during cyclic and secular periods demand another interpretation. The question has often been discussed whether the contraction of debts abroad has occasioned an adverse balance of trade, that is to say, excess of imports, or whether, on the contrary, the excess of imports has compelled borrowing abroad. These attempts to establish a primary cause very much resemble the well-known dispute as to which was first, the hen or the egg. For alike behind the excess of imports and the borrowing abroad lie other causes; these phenomena can be ascribed to insufficient savings in comparison with consumption, such, for example, as was the case in Australia during recent years; they may be due to great productive undertakings such as the Swedish railway construction in the second half of the nineteenth century; and they may be due to unproductive outlay such as the unprecedented military expenditure between 1914 and 1918.

But if only the progress of events during the longer periods be considered, it may be asserted that transferences of capital move towards the country in which a combination of natural conditions and intelligent enterprise guarantee a secure and relatively high profit. Borrowing and excess of imports in order to cover military needs, or to adjust a defective balance between consumption and the capacity to save, can never continue indefinitely. Even in this sphere it is time which is the unerring measure of value of what has the right to endure and what must pass away.

Gold Movements

When the international trade in goods develops in such a direction that any country imports much more than it exports and the reserve of securities has been employed to as great an extent as is thought justified, there remains only gold export to make good the deficiency in the balance of payments. Let us assume that the United States and Sweden are two countries isolated from the rest of the world, and that they exchange with one another only two commodities—Ford cars and chemical wood-pulp. Assume further that on a given occasion a Ford car is of the same value as a ton of wood-pulp and that the exchange of commodities balances. If it now happens that the price of wood-pulp falls by 10 per cent while the Ford car remains at the same price, and that the same quantity of each is imported and exported, a constantly increasing deficiency will arise in the balance of the Swedish payments. After the Swedish banks' holding of dollar bills has come to an end, there is nothing left but to export, for every ton of wood-pulp and every imported Ford

car, coined or uncoined gold to the value of 10 per cent of the Ford car. Only in this way can Sweden pay what it owes. But it is obvious that by this procedure the gold reserve in the Riksbank will go the same way as the reserve of foreign currency assets, and that such a development must be checked if the country is to remain solvent.

What measures can be taken to reverse the course of trade and recover the lost territory? Why, the same tried measures which we discussed in the last chapter when the excesses of the boom were in question, namely, the raising of the discount rate. An increase in the price of credit, however, has a variety of effects; at first the result is that foreign securities—practically speaking, short-term credits—are attracted to Sweden, where they earn a relatively high rate of interest, and thus Sweden is again in a position to adjust the price discrepancy of 10 per cent with securities instead of with gold. But in the long run that will scarcely help, for continued borrowing is not the right method of averting a threatened insolvency. A fresh advance in the rate of interest can only result in a reduced demand for saved-up capital, and this means that the country is passing through an economic crisis. Consumption diminishes, savings increase. Consequently, the public's purchases of imported goods are reduced; fewer Ford cars are imported and the balance of payment is recovered without the necessity of employing either gold or foreign securities.

Is this example, which recurs in various forms in many text-books of political economy, a picture of life? Does it accord with the economic rhythm as this may be studied in economic statistics? No, it does not. And this is by no means on account of any flaw in the

reasoning, but because it proceeds from a one-sided assumption. It has been forgotten that the question is not of the *discrepancies* between the Swedish and American balance only, but that the total variation of production and consumption in all industrial countries should first of all be taken into account.

Our reasoning is so far correct that there is constantly proceeding during the rising and falling international cycle a *balancing process* which limits the scope of the small waves which move by the side of the all-embracing cyclic billows. Gold is thus the internationally recognized regulator which through the money market prevents greater individual changes in the cyclic development. Gold is a sergeant who sees to the dressing of the ranks of the industrial nations both during the boom's impetuous assault and during the retreat of the depression.

During the actual crisis, gold suddenly rises to the position of dictator of the course of trade. When the gold reserve in any country reaches so low a level that either the banking law or prudence compels a decisive raising of the bank rate, the crisis is precipitated not only in the one country but internationally. This is so because, during the whole rising tide, a process of capitalization has been going on which, owing to the working of the international money market, has moved at approximately the same speed, in the various industrial countries.

In the last chapter we found the present significance of gold in a close community very problematic. In international relations, on the contrary, gold plays a prominent part as the universally recognized medium of payment. On a paper basis, when the various currencies do not stand in a definite relation of value

to one another dependent on the gold content of the standard coin, there is not necessarily any such connection. Then it is possible, as on the continent of Europe after the peace crisis, and perhaps again after the breakdown of the international gold standard in 1931, to have mutually independent "exchange cycles" in the different countries. But so soon as the gold standard is introduced, discipline once more pre-

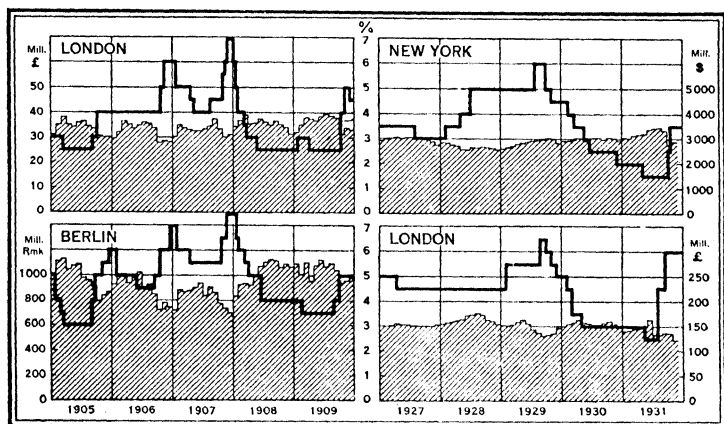


FIG. 9.—DISCOUNT RATES AND GOLD RESERVES DURING TWO CRISES
*The curves correspond with the discount rates. Scale in the centre (per cent).
 The shaded columns correspond with the gold reserves at the central banks.
 Scale at the outer margins.*

vails. The best evidence that the gold standard was working again was the simultaneous and similar course which the great crisis of 1929 took in the different industrial countries.

To obtain a somewhat more concrete apprehension of the connection between gold movements and discount fluctuations we may study Fig. 9, which illustrates the process at the time of two great crises. To begin with, we observe a very interesting difference

between the interest policy of 1907 and that of 1929; before the war the changes in discount rate were applied even to the adjustment of the lesser disturbances of a seasonal nature, whereas nowadays, with a well-filled bond portfolio and an ample reserve of securities, there is no need to call on the discount rate for such purposes. The function of the discount rate is now purely that of regulator of cycles.

But in this connection it is the fluctuations of the gold reserve and their significance for the discount policy, and thus for the cyclic development, which ought chiefly to engage our interest. We cannot study in our diagram how the circulation of paper is expanded during the boom, nor how this leads to the progressive lowering of the gold cover, but we observe that the reduction of the gold reserve before the crisis was on the whole very insignificant. Gold has sometimes seemed to be a dictator forcing on the conclusion of the boom, but even then mainly because the deciding authorities wished to obtain definite support in their action against the excesses of prosperity.

One might think that the development of the international money market in 1931 disproves a statement of this kind. It has indeed been contended that the scarcity of gold in certain central banks is the real cause of the general crisis which has culminated with England's abandonment of the gold standard. But if we analyse the chains of causation behind the facts we will find that the scarcity of gold is only a sign of much more fundamental changes which led up to the crisis. Maladjustment in capitalization, in the relation between wage-levels and price-levels, and in the balance of payments, is of far greater significance than the danger-signal of a falling gold reserve. The

meaning of gold bullion in the vaults of the central banks is more formal than real. But it is quite true that the formal clauses in banking law may mould the development of a crisis and have a psychological influence upon the whole situation.

In a world whose monetary system is essentially based on the gold standard, gold may accordingly be said to have two functions, both of which lie chiefly on the international plane. Firstly, gold is an internationally recognized platform ticket which gives its holders access to the incoming and outgoing shipments of goods and capital; without this platform ticket access to the international money and goods markets is difficult. Secondly, gold may be regarded as an insurance policy which compels the policy holders—each for all and all for each—to moderation in drawing bills upon the future, and thus provides a more or less trustworthy guarantee of a reasonably fixed value of money.

Finally, we are faced by the question whether another and a cheaper medium than gold cannot be found to fulfil the purpose of the platform ticket and the insurance policy. We shall, however, reserve this question for the next chapter.

The International Character of Cyclic Fluctuations

Just as the “money veil” was found to be an obstacle to the study of the actual features of the economy of the close community, so the balancing processes, the “arbitration proceedings”, in the widest meaning of the words, which are connected with the differences between the rate of progress in different countries, have often lain like a fog over the essential features common to the cyclic fluctuations in all individual countries.

Inventions and technical improvements, too, may increase with exceptional rapidity the profits of capital in a country, tariffs may have a dislocating effect upon certain sections of foreign trade and production, political events may disturb, and even for the moment completely dislocate, economic progress, but all these are *secondary* phenomena. The theoretic economic interpretation, which is primary, should be kept free from these economico-political aspects of the case. What should be explained in the first place is the advance in the formation of new means of production, whose progress is parallel in all industrial countries, during the prosperity phase of the cycle, and the retrenchment which, as internationally, prevails during the depression. That is the background against which "differential fluctuations", the divergences between the different countries, should be analysed and described.

When one takes the other way and ignores what is common and essential so as to fix one's eyes on the details in the foreground, one cannot expect satisfactory results. It is as though, in describing a power station, one were to mention only the insignificant differences in height between the various distribution basins, but say nothing about the fall or the volume of water which is the whole source of the generation of power.

That such a manner of describing the crisis problem has held the field so long, and actually was applied to the explanation of the crisis of 1929, is due to deep-seated and extremely interesting reasons. When one wishes to explain the crisis as a "stagnation" in world trade, one goes on building on the foundation of the mercantile conception of wealth; to put money in circulation, to bring about a "lively circulation", was the watchword of this school of thought. If only goods,

capital, and gold could be allowed to flow freely and unhindered through the channels which connect country with country, all would be well. This line of thought pays not the least regard to the only *essential* cause of every crisis, the vigorous growth and unequal distribution of new means of production in each industrial country.

It is remarkable that the English political economists whom we now call the classics, who in other respects were strongly opposed to the mercantile doctrine, on *this* point adopted the same line of thought. The economics of equilibrium which they elaborated had no place for the internal changes, proceeding in time, of production and consumption. Countries, like individuals, are regarded as indivisible, unalterable units, and cyclic changes can only be supposed to exist as a consequence of disturbances or changes in the exchange between them. The notion of universal equilibrium already excluded the possibility of homogeneous fluctuations common to the economic life of the industrial countries—a dislocation in country A must be counterbalanced by a converse change in country B. Only defects in the circulation could explain a general cutting down of trade and production.

Seen against this background the crisis interpretation of the economics of equilibrium stands out, consistent in its magnificent simplicity and its equally magnificent ignorance of the actual course of the cycle. It precipitates itself upon the economic relations between the different countries and takes all imaginable pains to avoid any consideration of the changes which might eventually take place *within* the industrial life of those countries. It never approaches a realization of the simultaneous variations common to all industrial

countries, for any such notion is quite beyond the ken of the economics of equilibrium. Thus it is consistent that in this book, in which we have sought to apply the principles of the economics of time, we should have come *last* to the international problem which the economics of equilibrium put first and could never quite get away from when explaining the cycle.

Bearing in mind the power of tradition in all theoretical sciences, it is perhaps not surprising that economic research has difficulty in emancipating itself from the classic lines of thought which combine with echoes of the mercantile conception to act as a straight waistcoat in *this* sphere. But it is certain that we cannot reach a true understanding of economic life with its perpetual changes unless we first investigate the essential, universally applicable phenomena with a view to passing on afterwards to the less important changes of detail. The key to an understanding of cyclic fluctuations lies in a true perception of the bearing of international interdependence. We must learn to realize that the crises in the age of industrial progress are only secondarily associated with defects in the communications between country and country; they depend primarily upon defects in the communications between the present and the future.

CHAPTER X

CAN ECONOMIC CRISES BE AVERTED?

RESEARCH AND FORESIGHT

EVERYONE who has ever worked out problems in solid geometry will remember how this involves an attempt to picture with the inward eye the volume of a sphere, a cone, a cylinder. The need to "think in terms of space" in that branch of mathematics corresponds with the need to "think in terms of time" in the more or less exact science of economics.

It is not enough, therefore, to define the situation existing at the moment and to enquire into the cause or causes of that situation, nor should we be content at a crisis merely to seek "the remedy" by which good times may be restored. Such an attitude to the question must of necessity lead to false conclusions in theory and to errors in practice.

The *whole* course of the cycle, the *whole* wave movement, must be surveyed, for by this means we become aware that the momentary position is the result of a multitude of different factors which arise at very different points of time. These stipulations being clearly established, it becomes obvious that the effect of each impingement on economic life differs widely according to the time at which it occurs. The cyclic waves—and ultimately all the waves that build up the rhythm of

economic life constitute the rising and falling substructure of the whole economic edifice. The economics of equilibrium may be content to discuss the general vague relations between cause and effect; it is for the economics of time to go beyond this and analyse the actual connection between cause, effect, and time. You may say if you will that the economics of time are introducing the notion of relativity into economic theory, but the essential thing is that the conception of causation should be brought more into harmony with reality. For it is the timeless equilibrium of the classics that is metaphysical and abstract, while the modern tendency in economic science follows the tracks of the concrete conception of causation held by natural science.

It is not to be imagined that these views have only an academic interest. On the contrary, the practical consequences of the transformation of political economy into an exact social science are, to put it briefly, illimitable. But for the present we are content to point out the possibilities in this direction which now lie at hand and which are capable of development.

Suggested Lines of Thought

The motto of modern industrial life is progress and change. It follows from this that an economic policy directed to a stabilizing of the economic position is, in the nature of things, foredoomed to failure. Stabilization is the economic principle of the Middle Ages and is the antithesis of the spirit of industrial expansion. But neither can progress be regarded as stable; uniform development fixed at a certain ratio is a conception as far removed from reality as that of unchanging stability.

Economic policy must be based on the assumption that economic life is made up of a whole system of variously conditioned fluctuations, and the point is so to adjust their incidence as to obtain the desired result both immediately and in the long run. This involves including in our conception the consideration of the underlying *objective* causes of the economic periods. All economic periods are dependent on psychological factors and on the lapse of time which is determined by the technical process.

Just as matter has its units which, in a variety of combinations, build up the world that we see around us, economic existence has its elements which together form the rhythm of development. These elements are the different economic periods, and economic science must take cognizance of how these periods can interchange in extent and duration and of how they act upon one another. Only on the basis of such a knowledge can economic policy be really aware of the consequences of its actions.

It is true that there is no absolute recurrence to build on. The short cyclic waves are most often three years in length, but sometimes they are four, sometimes two. If we proceed from the *typical* three-year period, we must accordingly leave room for a considerable margin for contingencies. But these "contingencies" are in their turn conditioned by other causal associations which can be elucidated by methodical study, and so the prognosis, the forecast, can be more surely determined.

So long as exact economics is still in the experimental stage, it must be admitted that prognosis is mainly of theoretic interest. In economic as in natural science it is possible to make experiments, but the methods are

not the same. In quantitative chemical analysis the result is often obtained within a few hours of the preliminary weighing of the stuff; in quantitative economic analysis one has to wait some months or years before the truth appears. After every such experiment our experience is increased, and in support of this statement one need only point to all the material which the latest crisis has yielded to economic research.

Yet these theoretically interesting forecasts have *indirectly* the very greatest practical value. For thanks to them the possibilities of giving more and more trustworthy prognoses are constantly being increased. What lies already within the bounds of possibility is to give warning of an approaching crisis when the formation of new means of production and the granting of credit begin to show unreasonable expansion. Twelve months before the crisis of 1929 an entirely objective analysis could not but lead up to a serious warning. That, at a period dominated by the mass psychology of a boom, such a warning is not willingly accepted is only natural. But a prognosis based upon a profound objective investigation need not be affected by charges of unjustified "pessimism"; it might indeed be supposed that it is the optimism of the public which is unfounded or, more accurately, short-sighted. It may be mentioned as characteristic of cycle psychology that distrust of the future is, during the depression, greatest in the very circles that, during the boom, see no limits to expansion. A measured prognosis may be of use even during the latter part of the depression.

It should be possible to say as a general rule that the most important part of prognosis at the present time is to insist upon the connection between economic progress and economic crises. It begins to be more and

more understood that the cyclical advance of its own nature leads to the crisis, and that there is a certain connection, more or less proportionate, between progress and crises. Of the industrial countries none has shown in the last half-century so vigorous a development and no country has had such violent crises and marked cyclic movements as the United States. France, with its slow and even industrialization and its mild crises, is a contrasting example.

The first concern of economic policy is thus to decide which combination of progress and crises is desired. Vigorous upward cyclic movement and with it a vigorous average progress, that is to say, wide expansion of the means of production, can be brought about by the aid of credit, but in that case one must be prepared for severe crises and severe periods of unemployment. A gentler development carries far fewer risks.

But to this rule two qualifying clauses must at once be added. Firstly, it is very doubtful whether, taking it altogether, the authorities will in a reasonably near future get so complete a freedom of action in the economic sphere to choose and to decide beforehand the rate of progress. Secondly, one should distinguish between that crisis or depression which is regarded as a necessary adjunct to progress, and the disturbance or aggravation of the depression which it would be possible to avert by a flexible policy of adjustment and equalization.

It has, however, often been asserted that a centralized control of industrial life would be able to abolish *all* crisis phenomena, and that the cycle problem should accordingly be regarded as a question of organization. Let us consider this proposition.

Plan Economics

If to begin with we call in the evidence of history to our aid, we find that more or less regular cyclic fluctuations have prevailed ever since the beginning of industrialism, and that under all possible forms and combinations of free competition, monopoly, and State control. This fact at once indicates that cycles and crises are directly connected not with the form of organization but with the creation of new means of production.

It may perhaps be objected that pure centralized State control has hitherto only been tried in Russia, and that the result there cannot yet be reviewed. This may be so, but when it is remembered how the Russian "boom" has been in principle induced in the same way as other upward cyclic movements, and has cost the present generation greater sacrifices of the satisfaction of present needs than have been demanded in other industrial countries, a sceptical attitude towards this argument must be maintained.

It is not, after all, the form of organization which is the deciding factor; it is the apportionment of the capacity for production as between the present and the future which is the essential. All plan economics is therefore in the end time economics. Even in a purely centralized collectivistic community it is not possible to determine omnisciently how development will appear in five or ten years' time. It is not possible to foretell what inventions will be made in this or that industry, nor is it known what direction consumption will take. Should it go to the length of forbidding an industry to make use of an invention lest its productivity should exceed the programme of work, and regulate

consumption in the most minute details without reference to the consumers, then plan economics will have triumphed. But then presumably it will have triumphed at the expense of progress.

Whether plan economics, taking it altogether, can be supposed to have any future in its most extreme form depends upon these and similar conditions. What should now be aimed at is an organization which shall *combine* the flexible adjustment to fluctuations of industrial enterprise, the rational division of labour and the international possibilities of monopolistic undertakings with the time schedule and co-ordination of State control. The controversy between individual control and State control has, in the course of development, already lost the doctrinaire character which is possessed in the nineteenth century. The question is one of practical economics and not merely of organizing principle, and this reacts strongly on the conception of the relation of the form of the organization to cyclic fluctuations.

What is for the present of practical importance in the crisis problem is the question how industrial life *as now constituted* should behave during the transition between good and bad times. In this connection it may now be postulated that realization on the part of the authorities of the connection between progress and crises is growing stronger, without, however, its being possible really to regulate the whole cyclic development far ahead. It is on these assumptions that we shall now briefly reply to the question how the several sections of industrial life should behave during the various phases of the economic cycle so that the disturbances, and especially the crisis phenomena, may be as slight as possible.

As a background for this description, we may choose the fluctuations in employment in the United States during the last decade, which are shown in Fig. 10. We see here that a long cyclic wave extends from the "peace crisis" of 1920 until the "rationalization crisis" of 1929, and that this includes three short waves. The motor-car industry is here employed as an instance of an industry forming new means of production, and

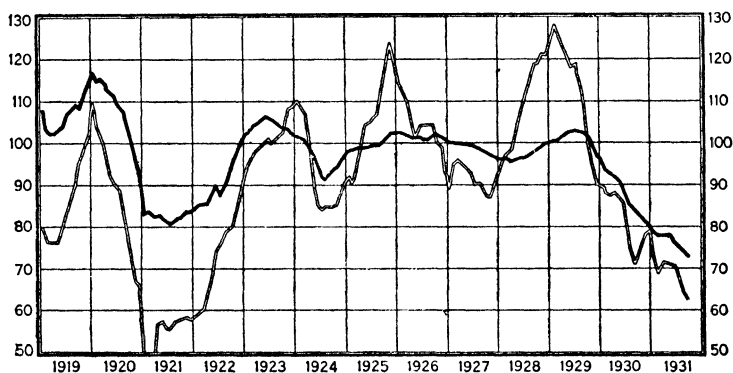


FIG. 10.—EMPLOYMENT IN AMERICAN INDUSTRY

The black curve indicates the number of employed persons in the whole of industry. Index figures: 1923–1925 = 100.

The unfilled curve indicates the number of employed persons in the motor-car industry on the same basis as the former.

In both cases the seasonal variations are eliminated as far as possible.

it shows, as might be expected, much more vigorous variations than industry as a whole. If we now ignore the relative restriction of employment after 1925, which is a consequence of technical rationalization, we have before us a clear picture of the "dynamic" nature of the modern progressive community. In one quarter of the year there is difficulty in obtaining labour for the factories, which are working to the limits of their capacity; a quarter later there are long queues standing

in front of the labour exchanges, and the machinery is at a standstill. What can be done, as things are, to mitigate these abrupt vicissitudes? Six several groups, active in industrial life, can be enumerated which have the power to intervene favourably; the sixth and last is by far the most important.

The State as Entrepreneur

When we examine the part played by State-controlled enterprise in connection with the cycle, we entirely disregard the general principle of State control. We are only considering the incidence of governmental activity in enterprise under existing conditions.

It is commonly said that, during the rising part of the cycle in any case, the State should restrict its activities in order to leave free play for individual enterprise which adapts itself flexibly to the market demand. This general rule may, however, need modification during a boom of the rationalization type. For if individual industrial life is so circumstanced that capital is concentrated in a small number of especially remunerative branches of industry, it may be in the interest of the community that the State, by means of certain forms of enterprise, should endeavour more widely to disperse investment.

During the last boom, when capital was absorbed by a small number of monopolistic undertakings engaged in rapid technical development, it would perhaps have been an advantage if the State had limited the possibilities of this one-sided investment by increasing new means of production in the form of improvement of communication facilities. The driving force for the concentration of capital in the rationalizing industries is

the expectation of increased profit, but these expectations may not be realized if they are based on an anticipation that the demand for the products will rise in full proportion to the increase in productivity. The State should thus be able to apportion rationalization in time and space. It is here a question only of a temporary correction of the temporarily unequal distribution of rationalization.

On the other hand, it is naturally entirely to be condemned that the State should attempt to remedy the unemployment resulting from rationalization by the application of obsolete methods to production. The pounding of macadam by hand ought not to be a result of the replacement of transport labour by mechanical methods of transport.

This brings us to the rôle of State enterprise during the depression. In Sweden, during the last decade, the principle has been applied that the State should organize relief works with a rate of wages lower than that prevailing in the general labour market, in order that State enterprise should not stand as an obstacle in the way of individual enterprise which ultimately is of decisive importance for the lifting of the depression. Opposition to unemployment insurance as a substitute for this policy has been chiefly on the ground that the insurance method interferes with the mobility of labour, and the countries where it is in operation have shown a tendency to make unemployment permanent. But there is the further point that every form of insurance assumes knowledge of the magnitude of the risk against which it is sought. Accident insurance is justified because the frequency of accidents keeps within circumscribed limits. But in a progressive, constantly mobile community it is impossible to judge

beforehand the future extent of unemployment; the risk is accordingly unknown. In actual fact the whole idea content of unemployment insurance can be put into force without having recourse to the form of insurance. What is, in general, attempted in unemployment insurance is, on the one hand, a recognition of the right of those unemployed through no fault of their own to maintenance by the community and, on the other, the creation, in good times, of a fund which is available during depression. The right to maintenance is now generally recognized and may be said to constitute the basis of modern social policy. The creation during good times of a national fund which renders possible a rapid increase of State enterprise during the depression has already been put into practice, but is capable of further development. Such a periodical increase of State enterprise, directed to the development of means of communication and works of that nature, implies nothing else but *a co-operation between State control and individual control*. During the upward cyclic movement, individual enterprise seeks out the path of economic progress; during the depression the State pursues with especial vigour the plan which has been laid down far in advance for the country's economic and social development. The action of the Swedish State in starting the electrification of the southern main line in the summer of 1931, when the depression was making itself more and more felt, was in harmony with this line of thought.

The State enterprises which are put in hand during the depression should thus satisfy the following requirements: they ought not by their nature or by the rate of wages paid so affect the market for goods or for labour as to prejudice the chances of private enter-

prise for overcoming the depression; they ought to satisfy real public needs and to be confined to spheres in which individual enterprise is either unwilling or unable to take initiative; finally, they ought to be conducted by completely rational methods. The electrification of railways, the removal of railway level crossings, road and bridge building, and the laying out of aviation grounds are instances of such work.

The Individual Entrepreneur

The watchwords of the modern entrepreneur must be foresight and adaptability. In individual enterprise and in every branch of industry the idea of time economics has, *in principle*, triumphed all along the line. During the rising phase of the cycle each producer has to follow minutely the development of the market and to adjust production to the economic situation. A close acquaintance with the monthly fluctuations of production and stock in the industry in question is of the greatest value in this connection. A development of industrial statistics is therefore an important link in the efforts to mitigate the harmful effects of cyclic fluctuations.

During the falling part of the cycle it is important that a rapid restriction of production, the discontinuance of unprofitable manufacture and immediate writing off of the losses sustained, be combined in order that a position of equilibrium may be restored without needless delay.

Labour Organizations

It is scarcely surprising that the workers, in an even higher degree than the entrepreneurs, take more interest in the actual situation than in the tendencies

that produce it. The three or four decades that preceded the Great War brought a gain of the utmost importance to labour: a minimum wage was fixed, and it was the establishment of this minimum that the labour organizations regarded as their principal object. Inasmuch as economic progress has increased the national income and equalized the distribution of income, this aspect of the matter has begun to lose its importance, but wage policy is none the less built on the old foundation. It is this misdirected traditionalism that sometimes leads to a monopolistic wage policy which undoubtedly aggravates the depressions.

Even for the trades unions the word adaptability ought to be the watchword. It is a question whether much might not be gained by shortening the agreement periods so that the wage level, like the interest level, could adjust itself without very great delay to the cycles. During the revival wages ought soon to rise with the rising profits of capital and by this means moderate the too-rapid growth of new means of production; but it must be recognized that this brings with it a slackening of the average rate of progress. It involves, in other words, that the rising needs of to-morrow would not to quite so great an extent limit the satisfaction of the needs of to-day.

During the falling part of the cycle wages ought to be promptly reduced, by which means the falling costs of production would encourage new enterprise and cause a reduction of unemployment. A reduction of cash wages which leaves real wages unaffected is likely as a rule to bring about so rapid a cyclic improvement that, in a short time, labour will gain by such a wage policy. An argument which takes the line that the main thing is to keep up the public's purchasing power is based

—as we have so often insisted—upon a fallacy; the cyclic movement is primarily governed by output, by enterprise, and only in the second place, by demand, by consumption. In course of time, that is to say, in the secular wave, the mobile wage policy leads to an absolute advance in the sum of the wages paid out over a long series of years, and by this means the periods of unemployment become shorter and the total of production greater.

Commerce

Even the distributors of goods and services can actively contribute to a smoothing out of unnecessary disturbances in industrial life. It is speculation conducted with knowledge and foresight that is valuable in this respect, for every speculation for the fall in a rising market and every speculation for the rise in a falling market has an equalizing effect.

It is in this sphere that economic information plays an important part, or perhaps more correctly, could be of great importance. Despite the rapid development of economic statistics and the rapidly increasing number of organs of information, the time before the crisis of 1929 was characterized by a colossal misjudgement. The circumstances suggest that statistical tables and curves by the thousand are entirely useless if they be not made the basis of sound thinking, if no attempt be made to find the truth behind the appearance of things. Apart from more specialized information, the Press in our times plays a very important part as disseminator of economic atmosphere. In this sphere the newspaper Press has not yet in general quite realized the responsibility attached to increased power.

Savers and Consumers

The public is the objective of enterprise; it is the public that ultimately provides saved-up capital, and it is the public that buys goods. But it does not follow from this that it is the public that determines the course of economic cycles. "In the long run" it is the whole community, that is to say, in the first place, the great mass of consumers and savers, who determine production, but at the time it is the entrepreneurs who govern development by their initiative. For the increase of new means of production is largely brought about by the application of undistributed profits within the undertakings, by which means the distribution of saved-up capital is withdrawn from the option of the public. And in our days the consumer, owing to the monopolistic control of much of the commodities market and through the system of advertisement, is a more passive link in the mechanism of economic life than we are generally willing to admit.

But none the less the public *have* opportunities of exercising a favourable influence upon the cyclic fluctuations. Thus during good times increased foresight in the investment of capital and in borrowing means a check on the excesses of the advance. And if the public does not involve itself in extravagant instalment transactions during good times, the chances of a rapid rise in sales during the depression are increased. It may be added that in bad times the consumer has especial opportunities of imposing his wishes on the producer, for at these times undertakings are scarcely able to make both ends meet. During the depression it is literally true that the producers are meeting the demands of the consumers, whereas during the boom

of industry begins to extend its consequences to the whole of economic life.

A further limitation of the problem arises from the fact that the short cyclic wave has a period of at least two and at most four years. At the least, in a year and a half, and at the most, in three years, after the bottom of the last depression the crisis must occur, and, taking it altogether, there is never more than one year that may be regarded as the critical period in the course of which the decisive raising of the discount rate ought to be resolved upon. This is all very well from the purely statistical and economic point of view. But there is also a *political* factor of the greatest importance. Great courage is certainly required of a bank directorate which would prematurely check the boom; it will certainly be exposed to powerful pressure so long as the connection between progress and crises has not profoundly penetrated the general consciousness.

When the crisis is an accomplished fact the task of the central bank is, as we know, to make safe provision for the requirements of industrial life in respect of the means of payment, in such a way that runs on the banks may be prevented. Credit must always be obtainable, even if at a high price. It may be said that the modern banking system has succeeded in discharging this task, and the new banking system established in the United States in 1913 stood the test well in that respect during the last crisis.

But it does not follow from this that the rate of interest is to be reduced to a minimum so soon as the worst of the crisis is over. We have already shown in the last chapter that such a policy only leads to a temporary revival of the boom, followed by a sharp depression. The central bank must let the liquidation of

industrial life take its course; the discount rate must abdicate its throne and once more take up a modest position as registrar of the money market. As the depression spreads enterprise grows less and less, the demand for purchasing power sinks and the interest rate falls more and more. The discount rate, which it is possible at the same time to reduce, thus approaches the low level which enables enterprise once more to intervene when other conditions permit an increase of production.

This is the function of the central bank within the close community. But we have earlier pointed out the importance of international co-operation on the money market, and emphasized the significance of gold in the character of "platform ticket" and "insurance policy". For the very reason that gold maintains the international character of the crisis, it is difficult for a single country to occasion the downward turn of the cycle in advance of the inevitable crisis.

It is certainly possible to imagine valid international media of payment and measures of value other than gold. Notes issued by an international central bank on specified, carefully devised principles are conceivable. But, apart from the fact that such a plan presupposes a confidence between the nations and a deliverance from the superstitious belief in the inherent, absolute value of gold, which still appear quite problematical, the suggestion provides no solution of the problem of regulating the cycle. For even with these notes as the substitute for gold it is necessary for the international bank to make the decision as to when the boom is to be interrupted. One has only to imagine oneself in such a situation to perceive how great the difficulties of an international planning of progress and cycles really

are. One is assuming, in fact, that a country which has no great inflation and has committed no obvious imprudences in its financial policy is going to submit to the international bank's decision as to the interruption of the boom, a decision which is based on knowledge of the risky position in another leading country. It is the same kind of psychological problem that meets us in so many other respects of international co-operation.

Hitherto an international levelling-out of cycles has been brought about by the aid of the crisis and in obedience to the law of stern necessity. Scarcity of capital, insufficient gold cover and rapidly rising rates on the open money market have precipitated the crisis which has automatically become an international phenomenon. When meditating how it may be possible to produce, at an *earlier* stage and without a crisis, an interruption in the boom, one should consider what are the powerful psychological forces to be found in opposition. These forces are undoubtedly derived from a short-sighted conception of the interactions of economic life, but it is equally beyond doubt that national and individual interests will strongly support such views. It may be well carefully to think these actual conditions over in drawing up plans for a future reorganization of the monetary system. And this not to paralyse belief in a reform in this direction, but in order to achieve from the beginning insight into the extraordinary difficulties of the problem.

The Goal of Economics

We have now come to the end of this condensed survey of the limitless expanses of the economics of time. We have paid less attention to actual conditions than

to the nature of interactions in time; we have attached more importance to the mode of thought than to practical details of its application.

Exact economics, which now seeks to amplify the propositions of the classic economics of equilibrium, has, as yet, only been able to take its first tottering steps. And yet one can say with full assurance that this line of development will be pursued until in every sphere the economics of time take the place of the economics of equilibrium. We have often insisted that the scientific conception of causation and the scientific process of thought is our model. But it is not only the elucidation of causal association by the laws of probability that is important. Altogether it is the increase of objective truth by scientific methods of research which will replace the metaphysical political economy of the nineteenth century.

The classical theory's traditional detachment from research upon experimental, exact lines has led to a dangerous simplification of the problems of economics. Because by syllogistic reasoning about cause A and its effect B it was possible easily to dispose of the course of events, something of this mode of thought was brought into the handling of the actual problem. It was clean forgotten that the theory by its assumptions was only concerned with what might be supposed to happen "in the long run", and that it reckoned on immediate effects from theoretically justified interventions. The belief in the capacity of "the will" at any moment to change everything according to its wishes must now give way to a conception in better accord with economic reality and its laws. A definition of these laws on the basis of what actually goes on during different periods of time is a task which very closely

resembles the laboratory work of chemistry, physics, and biology.

In so far as the economics of time are the substance of social science, a definite boundary line is drawn between economic theory and economic policy. Instead of an abstract theory of equilibrium which constantly mixes up causal association with manifestations of will, there must be a concrete economics of time which gives enlightenment as to the economic time-determined laws. These laws can then be applied to actual problems, and the authorities can obtain enlightenment as to the probable consequences which various courses of action put in hand at different times may bring about.

An objective science of this kind may in the end, more than a political economy in the classic spirit, promote frictionless co-operation in industrial life. In place of the cast-iron law of wages, the Malthusian law of population, and other such dogmas, which in their statical conception of life are reminiscent of the doctrine of predestination, we find an economic theory which proceeds from the perpetually moving, perpetually changing reality. By looking beyond the position at the moment, by thus bringing the whole rhythm of economic life into association, new opportunities are opened up for mankind to exercise its will, and, taking the long view, perhaps free will is no illusion.

Even though we cannot in a single day transform society by an act of will, so that the millions of unemployed obtain situations, we can plan for the future so that prosperity shall advance fairly evenly and fairly quickly. The conditions of such a planning becoming a reality are, first, that economic *research* shall develop to such a point that it is able to give safe guidance as to

the connection between progress and crises. Secondly, it requires *foresight* on the part of the authorities, and this involves that mankind shall allow the actions of the moment to be determined by the requirements of the future.

But we must be quite clear that such a planning far in advance cannot proceed from purely economic assumptions. In the modern community where the increase in population is becoming more and more restricted at the same time that scientific and technical developments are opening up possibilities of a constantly more effective employment of the resources of nature, the greatest possible and most rapid conceivable increase of production is not necessarily the sole aim of economic policy. We are not concerned merely with the satisfaction of material needs; we must weigh spiritual and material needs one against the other. For consumption and production are but the means to an end, and that end is the general advancement of mankind.

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