Volume Title: Strategic Factors in Business Cycles

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Volume Publisher: NBER

Volume ISBN: 0-87014-023-X

Volume URL: http://www.nber.org/books/clar34-1

Publication Date: 1934

Chapter Title: Part 6: The Strategic Factors

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Chapter URL: http://www.nber.org/chapters/c2320

Chapter pages in book: (p. 160 - 226)

PART SIX

THE STRATEGIC FACTORS

Factors of Prediction versus Factors of Diagnosis

THE factors of strategic importance in the business cycle may be classified into those that may serve as means of prediction, those that may serve as means of prompt discovery and gauging of current conditions and of the stage of the cycle in which the country finds itself at any given moment, and those that may be susceptible to control and may thereby serve as means of controlling the course of business conditions. The first group is the one to which business men have hitherto paid most attention. The second and third groups are those on which the possibilities of long-run remedies really rest.

No one factor behaves with sufficient regularity in relation to the general business cycle to serve as

an infallible index of prediction. And no group of factors can be so used with absolutely reliable results. Prediction-factors may be classified into those which represent some change of genuine initiatory influence and those which merely record the current phase of the cycle, from which the next phase may be expected to follow in about the usual time.

With regard to the first group, factors which normally take the lead cannot be counted on to do so in every case. There is probably always some initiatory factor or group of factors which could be picked out by sufficient study after the event; but the factor which plays this role in one instance may be replaced by different factors in another instance. And there is the ever-present possibility of some new and unique factors, or of some more or less familiar factors playing a new and unique role. Moreover, the minor fluctuations of the factors always leave considerable doubt as to whether a given factor has just reached its cyclical low point or high point, or whether it has merely experienced a brief interruption of a movement which will shortly be resumed. Few have a sufficient lead to make it possible to wait until their cyclical turning-point is surely determined, and still use them for predicting the corresponding cyclical turning-point of general business; and these few are too erratic in their behavior to make the prediction certain.

As to the type of prediction system which merely

records the current phase of the general cycle and allows the observer to infer that the next will follow in a normal time, the results are made highly uncertain by the large variations in the length of cycles and of their successive phases. And it is never safe to predict, for example, the extent of a coming expansion by the extent to which a current depression falls below 'normal', because such a 'normal' is always arbitrary or uncertain. Indeed a statistical trend line, projected forward to the date of the latest observations, has little claim to be regarded as normal with respect to current conditions. Non-cyclical changes and disturbances are always likely to vitiate it. Such a method might have succeeded fairly well in 1921, but would have failed utterly in 1929, or at any time during the succeeding three years. On this basis predictions of revival were repeatedly made and repeatedly followed by further contraction.

The hope that the technique of prediction will overcome these difficulties involves, paradoxically enough, not optimism but pessimism. For it carries with it the expectation that cycles of the present type will go on their uncontrolled course for some time to come; and that is precisely what must not be allowed to happen, in the view of the more liberal-minded of publicists and business men alike. Theoretically, predictions based on past experience should have a tendency to falsify themselves by leading to different conduct in the future; but so far there have

been no very great evidences of such a tendency.

One reason why mere prediction will not put an end to business cycles is that business men will use the predictions to guide business policies of the same basic sort they now follow: expanding to take advantage of increasing demand and contracting to meet declining demand and building up excess capacity in the hope of increasing their proportionate shares of the existing business. If expansion is predicted, they will still take action which will tend to bring the expansion about and to intensify it, though perhaps more promptly than at present. If expansion is expected soon to turn into recession, they will then take the kind of action calculated to bring on the recession and to intensify it, though perhaps more promptly than they now do. As a result, they may not carry either the expansion or the recession quite so far as they now do; but to expect a greater change than this would be highly optimistic.

The theory that business cycles can be controlled as a result of successful prediction alone—if anyone holds this theory—rests on the implied assumption that cycles are due to the mistakes of judgment made by individual business men. For this theory the present study has yielded relatively little support, while it has indicated the very large importance of causes of a quite different sort; and the present writer believes this theory to be, in the main, false. The trouble seems to be not so much that business men

mistake their interests—though that does happen, and aggravates some of the difficulties—as that their actual interests lie in doing the things which bring on the cycle, so long as they are acting as individual business men or representatives of individual business interests. A business man who refused to expand his sales on the up-swing would gain nothing, and one who refused to retrench on the down-swing would probably go bankrupt. One who stabilized his individual construction program would incur some risks by building ahead of demand or by being caught with inadequate reserve capacity in an expansion; and would not produce sufficient effect on the whole business situation to receive in return any substantial benefits in the way of stabilized demand for his own products—as he might hope to do if all business followed the same policy.

It seems to be a case in which the best policy for an individual to follow in adjusting himself to the existing bad conditions is not the same as the policy by which the business community as a whole may hope to get rid of the evil. It is only from a change in these customary reaction patterns that we may hope for real changes in the result. Something must happen to bring about a condition in which the response of business to a revival is not such as to make the revival over-run itself and make a recession inevitable. If that can be brought about, it may be that we shall not need infallible prediction; only

prompt and reliable current diagnosis, to guide the neutralizing policies which business or government or both stand ready to put into effect.

The task of current diagnosis is far easier than that of prediction, though still not easy. There are plenty of indexes of general business activity which tell us well enough how fast business is going at any given moment. But this does not tell us our position relative to that elusive standard called 'normal', nor does it even dispose of the difficulty of determining in what precise phase of the business cycle we are at any time.

As to the first difficulty, the carrying of 'normal' or 'secular' trends down to the current moment is always a doubtful procedure, and hence the degree of departure from such normal trends is equally doubtful. Something may be accomplished, however, by better measures (and better mobilized information about them) of surplus capacity in construction, and keener analysis of the relation of prices of securities to possible prospective earnings. It was well known that stock prices during the great boom were capitalizing future increases rather than current earnings; but no systematic analysis appeared of the extent of future increase in earnings necessary to rationalize current prices. Had such an analysis been made, it must inevitably have revealed that such necessary future increases were beyond all human possibility.

As to the second difficulty—that of determining what stage of the cycle business has momentarily reached—a clear example is seen in the current depression, the duration and severity of which have gone so far beyond usual experience and expectation. Many persons thought we had reached the low point in January, 1930, and have thought so repeatedly since then, while we slipped down, with occasional abortive revivals, into deeper and deeper stagnation. And among persons who agree on the kind of rescue work that can be effectively employed there is still difference of opinion as to when it should have been undertaken in the present depression. Would it have been effective if employed promptly, or would it then have merely spent its force while the worst impact of the depression was still to come? Such chances as are implied in this uncertainty we shall doubtless have to take; and they will not be as great in the ordinary case as in the present one, since this is, after all, more than a mere business cycle.

And if measures of control are devised which have some degree of effect, the character of the problem will change. It will be neither the problem of prediction nor that of determining precisely where we are in the now-customary type of business cycle, but of determining when an approximately regularized economy has fallen below its normal trend of activity. And it will not be absolute activity that will

count so much as activity relative to the full utilization of our existing working force. In short, the state of employment and unemployment will be a dominant index.

Causes: A Partial Theory of Business Cycles

If we group the factors into those having directly to do with production and those having directly to do with consumption, it appears that they interact so completely that it is impossible to say that one group is the active one and the other the passive. In this connection it may be worth while to break into the sequence in one of the late phases of an extreme depression like the present and follow it backward toward ultimate originating causes.

Let us start with a shrinkage of consumers' purchases because of hoarding, this being attributable in turn to the fear of losing one's job which arises after curtailment of production has already begun and further curtailments seem likely to follow. Curtailments of production in the winter of 1931-32, let us say, were made because normal bank credit was difficult to obtain; and the extreme niggardliness of the banks sprang from a state of fear engendered by a wave of bank failures, due in turn to the losses of the businesses that were the banks' debtors. These losses were caused by the combination of falling prices (mostly wholesale) and shrinking sales, both traceable to a decline of business buying and

ultimately to a decline in consumers' purchases occurring earlier in the cycle than the particular decline in which our backward-tracing analysis started.

In the present instance there was added to this and compounded with it a world-wide collapse in basic commodity prices which was no part of an ordinary business cycle. Without this the more usual cyclical forces would have produced much milder results. Recognizing this fact, we may go on to deal with the typical cycle history.

The basic decline in consumers' purchases is a common feature of all cycles, and is mainly consequent upon an actual shrinkage in consumers' incomes, resulting in turn from a prior shortage of general employment and lessened production in industries at large. The earliest shrinkage in consumers' purchases can hardly be due in any significant degree to the fear of losing the job, since the cause for that fear has not yet made itself manifest to an extent sufficient to disturb the optimism that marks a time of active business. The general curtailment of employment and production which originates the decline of consumers' incomes includes a falling-off in physical production of consumers' goods prior to any similar definite falling-off in consumers' purchases. With this goes a much more intense falling-off in the work of producing durable goods (the reasons for which we have already

traced), and which is preceded by a tapering-off of the rate of increase.

This is accompanied by a curtailment of credit of various sorts, and accordingly total expenditures fall off more than consumers' current expenditures out of current income. And while this curtailment may be intensified by any actual falling-off in consumers' incomes, the source from which its first manifestations arise may be no more than a cessation or slackening of expansion in the total amount of producers' equipment or durable consumers' goods, causing a positive decline in the rate of current production of these commodities. This may be merely because supplies of equipment or durable goods have caught up with demand. This in turn implies that demand expands irregularly, and that after an up-turn, production for a time expands faster than what we may call the original expansion of demand, and thus at a rate that cannot be permanently maintained.

These original expansions of demand may in their turn arise, first, from merely chance happenings; or, second, from the basic tendency which statisticians express in curves of normal growth, starting with something like a geometrical rate of increase, reaching a maximum rate of expansion, and then tapering off to a saturation-point. In such cases as we are concerned with, the saturation-point is best expressed as a uniform per capita rate of use or consumption,

in a community with a growing population, or perhaps in some instances even a stronger upward trend representing normal per capita expenditure in a country with a gradually rising per capita income. The 'growth' in excess of this trend represents the process by which a new good or a new process makes its way to a fairly stable place relative to others, in an expanding economic system. If it is an absolutely new good the growth-curve may start from zero. If it is a case of a change enlarging the normal place held by an existing good, the growth-curve may be superimposed on a secular upward trend, or different growth-curves with different periods may be superimposed on each other.

These normal growth-curves we may regard as representing roughly certain causal forces which are ultimate for our present purpose. They may have to do with the development of new goods and of the conscious and active desire for them, or with new processes of production calling for increased investment in productive equipment. In either case there is no reason to suppose that either the curves of normal growth or the chance fluctuations which are combined with them have any inherent tendency, in their essential nature, to move in cycles of either three and one-third or of ten years. These inherent tendencies, be it remembered, are factors which are not to be observed unmodified in the statistics. The actual statistical changes record the results of the

entire chain of cumulative sequences, returning on themselves endlessly, which have been indicated in a fragmentary way in the foregoing analysis. The inherent tendencies of what we have chosen to call the ultimate causal forces are so overlaid and transformed by these sequences of secondary and tertiary results that their original nature is buried, and can only be gotten at by other methods of inference than those of direct statistical tracing.

The development of new goods seems to reach maturity in varying periods of time. The automobile has required more than a generation, while miniature golf ran its course in a few months. In general, goods of large and enduring significance seem to require considerably more than a ten-year period for development. The same can be said of new productive processes, with modifications. The time required to develop the potentialities of a basic idea such as that of scientific management is as long or longer than has been required by the automobile, but single processes may be developed in a much shorter period. There may be an initial stage of experimental pioneering, followed by a putting of the method into actual production, this involving some small but appreciable demand for new equipment. If the method proves its economic worth, there may be virtually instant recognition of that fact, and a wave of imitation, sweeping over the entire field as fast as the character of the improvement admits and

causing a very considerable demand for new equipment. Schumpeter's analysis of intermittent movements of pioneering followed by waves of imitation is pertinent on this point and is the outstanding theoretical treatment of it.[1]

As the work of overhauling production methods tends to be to some extent concentrated in the depression phase of the business cycle, the first applications of improved methods in actual production probably have some corresponding tendency to concentrate toward the later stages of depression. This would, as far as it went, tend to check a recession or initiate a revival; and the waves of imitation, occurring still later, would give a stronger impetus to revival. Thus this particular type of growth-curve may come to coincide with the general business cycle, to the extent that the timing of the initial pioneering is influenced by the cycle and is not a wholly independent fact. As to how far this actually happens, statistical measurement is well-nigh impossible. It is so much a matter of the kind of problem on which the regular executive staff focus their attention. The concentration of such developments may be relatively slight, after all. And even this can only be true of relatively minor developments; major changes require a much longer period. They could not be incubated, brought into successful applica-

[1] This theory, together with others, is summarized in W. C. Mitchell's *Business Cycles: The Problem and Its Setting*, Chapter I.

tion and widely imitated, all in the course of one depression and revival.

Whether this hypothesis be true or not, the actual bulk of the installation of machines, as well as of the actual growth of sales of new goods, is conditioned by effective demand and so follows the course of the general business cycle. The normal growth-curves of which we have been speaking express the underlying forces as they would develop if unmodified by these factors derived from the business cycle itself. In all probability they have a wide variety of natural periods. Many of them, representing the experimental development and subsequent general adoption of fairly specific and limited technical devices, may be prompt enough to be stimulated in their early stages by the spur of hard times, and to reach a considerable development during the subsequent expansion of general business. But few would be so short as to run their whole course in one business cycle. It is difficult to ascribe the length of the forty-month cycle to any natural periodicity of such growth-curves. The safer assumption is that the growth-curves have a chance distribution, modified by the business cycle in the ways already suggested.

The combined resultant of a number of these growth-curves superimposed on each other would naturally be a state of growth varying somewhat from decade to decade and with shorter and slighter fluctuations of an irregular sort. But there is still no

reason to suppose that the combination of this composite growth-curve with purely chance fluctuations would show any natural tendency to run in cycles of the familiar observed lengths. There is every reason to suppose that these fundamental forces are, in point of timing with reference to the general business cycle, random forces.

If there is, as there certainly seems to be, a tendency to a qualified regularity in the ups and downs of business, its cause must be sought in the mechanism whereby business reacts to these original impulses. On the basis of the above analysis a theory of the business cycle can be constructed which would account for its salient features, as follows:

By way of starting-point we may take the impulse leading to an up-turn of business. This impulse may be one of a wide variety of possible sorts, or may represent a combination of more than one. It may be of the 'originating' type, or derived from a previous depression. It may affect output of producers' goods or output of consumers' goods, either directly or by way of the consumers' demand for them. 1. Production may take an up-turn without waiting for demand, owing to: (a) the removal of some specific obstruction—for example, a strike; (b) the need for replacement following a period when stocks in the hands of producers, dealers or consumers were allowed to decline, as may happen in a depression; (c) the development of a more optimistic (or less pessi-

mistic) feeling among producers, whatever may be its source. 2. Demand for productive equipment may take an up-turn without waiting for increased demand for products, owing to: (a) changes in technical methods of production; (b) the development of new goods in anticipation of demand, or for which a potential demand appears to exist; (c) the need for resuming maintenance and replacement which has been temporarily postponed, as happens in a depression; (d) increased optimism, which may affect (a), (b) and (c). 3. A shifting in consumers' demand from one commodity to another may cause a demand for equipment to produce the new commodity without the possibility of an equivalent decrease, in the same space of time, for the equipment to produce the older and discarded commodity, thus giving rise to a net increase in the demand for equipment. 4. An upward inflection in the course of total consumers' demand may take place, from causes not dependent on prior increase of income (which would have to rest on increased production), as a result of: (a) the offering of attractive new goods; (b) the using up of 'consumers' inventories'; (c) a more optimistic mood, (d) selling effort, or (e) increased demand from abroad.

Except in the case of foreign purchases, an increase of demand, not derived from a prior increase of production, would necessarily carry with it at first either an increase of consumers' credit or a de-

crease of savings. The latter, be it noted, may not result in a decrease of funds available for purchase of productive equipment, since it may be more than offset by an expansion of producers' credit.

It will not be necessary to follow out the results of all these types of original impulse separately. If we start with this fourth group, we shall take in on the way all the essential features of the transmission and spreading of the other types of impulse. For an upward inflection in the course of 'original demand' has its most substantial result in the shape of an intensified upward swing in the output of means of production and of durable goods. And this is a condition to which all the other types of 'originating impulse' also lead.

If this resulting increase in production responded exactly and instantaneously to the original demand, and were not affected by any further secondary consequences, the derived curve would have the same period of swing as the original curve, though the timing of the peaks and troughs would be different, the derived curve appearing to lead.[2] But the derived curve does not respond exactly and instan-

[2] See Part II, Timing: Construction. See also Business Acceleration and the Law of Demand, *Journal of Political Economy*, XXV, 217-35, March, 1917; also *Economics of Overhead Costs*, Chapter XIX. Cf. also Capital Production and Consumer-Taking—a Reply, *Journal of Political Economy*, XXXIX, 814-6, December, 1931. This is a reply to Ragnar Frisch's The Interrelation Between Capital Production and Consumer-Taking: *Journal of Political Economy*, XXXIX, 646-54, October, 1931.

taneously to the original impulse, and it is reinforced and modified by its own cumulative effects. It takes time to produce the equipment and durable goods, and meanwhile there is a shortage which sends prices up. This in turn tends to cause an increase in speculative buying and buying for storage, which reacts cumulatively to intensify the rise in prices. Guided by the rising prices rather than by a statistical canvass of demand and supply, competitive producers launch upon the production of more goods and equipment than necessary to meet the requirements of the original expansion of demand.

The expansion of business at rising price-levels is financed and made possible by expansion of credit, moving in response to demand. At the same time the increased productive activity results in increased distribution of wages as soon as the expansion of production begins and before the new durable goods, or the products of the new equipment, are actually on the markets. The effect is an increase of general purchasing power which both intensifies the original impulse and spreads its influence over commodities in general, thus further stimulating the demand for productive equipment. The competing producers, who had started to produce too much, may even find that their first program is not large enough for this new state of demand, and further expansion may ensue, with further diffused effects of the same sort as before.

But equipment and stocks of durable goods are catching up with requirements, which will not expand indefinitely. Not all the increased income is spent, and some of what is 'saved' is probably temporarily absorbed in the speculative markets for securities without immediately taking effect in increased purchases of producers' or consumers' goods. By the time the market shows that requirements have been caught up with, there is an over-supply either in existence or in process of production. Production of equipment and durable goods now slackens, prices fall, the contraction in the basis of credit is intensified by forced sales and lack of confidence. With declining production, income distributions decline, the slackening is thus diffused and intensified, and the cycle is reversed.

The time required for all this to happen is quite independent of the time required for any 'originative' impulse to reach its natural saturation point, in case such an impulse played a part in starting this particular movement. If the original impulse were the development of an important new commodity, a generation might pass before it reached its saturation point if there were no interference from the spasmodic movements just described. Long before this, these secondary effects will have produced a cycle of expansion and contraction, interrupting the 'normal growth-curve'. There may, in fact, be several such cycles before this original impulse is ex-

hausted. The railroad and the automobile has each played its part in a number of successive cycles.

On the downward course, consumption does not shrink as fast as production, while credit is contracting. Ultimately, such surplus stocks as may have accumulated are worked off and the need of replacement counteracts the temporary abnormal shrinkage of demand for productive equipment and durable goods. As a result demand begins to revive and the cumulative process starts once more, if not previously initiated by some random happening that affords an independent stimulus. At any point, in fact, this sequence may be altered, stimulated or dampened, speeded or retarded, by the interposition of some fresh outside factor. Or its character may be modified by variations in the behavior of the elements in the system of business responses, such as might arise from changes in the credit system or in the importance of durable consumers' goods, or the spread of the corporate form of financing of office and apartment buildings. But this system has sufficient momentum in and of itself to account for a considerable succession of cycles without constantly renewed stimulus from outside.

If this is a correct picture of the main determining features of the typical cycle, the average length is to be accounted for, not by any periodicity in the originating forces but by the time required for these reactions of the business system to run their course.

If we were to draw a line depicting the original growth-curve of ultimate demand as it would be if unmodified, and a second line depicting the derived demand for durable goods as it would be if it moved in such a way as to satisfy the original demand instantly, the second line would, as already noted, have a period corresponding to that of the original line of growth of original demand, with an apparent lead of approximately a quarter-cycle owing to the fact that it reaches its peak at about the time the original curve is rising most rapidly. But the actual curve of derived productive activity does not behave in this way. It reacts on the original curve, modifying the latter in the direction of its own movements, including the tendency to an earlier peak. This reacts back on the derived curve, causing it to reach its peak earlier than it would otherwise. This effect is complicated by the fact that the derived productive activity does not at once rise to the full extent required to satisfy the increase in original demand, but lags at first, and then rises even more steeply in the effort to catch up, and finally is pushed beyond immediate requirements by the effects of speculation and of competitive duplication. The resulting recession reacts again on the demand for finished goods, and the natural curve of growth is interrupted by a decline.

Thus it is natural and logical that there should be several cycles of derived business activity during the

course of one major growth-cycle of original demand. And the duration of these cycles is presumably governed largely by the time consumed in this process of lagging and subsequent catching-up and over-expansion, and in the subsequent process of clearing the markets and exhausting the excess of durable goods. This time-interval is dependent upon several factors, technical, commercial and psychological. Among these factors are those governing the time required to produce goods and to bring new equipment to the stage at which its products come on the market, including the time required to launch and finance projects of expansion. If the process of launching and financing projects and completing the first units of equipment or durable goods consumes on the average ten months, then it is logical that the expansion should involve considerably more time than this, and forty months becomes a rather natural average period for the entire cycle. A further conditioning factor is the growth of a general spirit of optimism, making business men more ready to build for the hope of future expansion, and by the subsequent evaporation of that spirit. The course of events is also affected by the continuation of production and prices on the basis of standing contracts made in the past. Another conditioning circumstance is the impossibility of developing new wants fast enough to make effective demand for consumers' goods expand as fast as income when income is ex-

panding as rapidly as it does on the upgrade of the cycle.

It would naturally be expected, since all businesses are affected by the general cycle but not all are under the same degree of original stimulus, that some may have exhausted their original stimulus more completely than others by the time the general reaction comes. The original stimulus may be more persistent or less; the response may be prompter or slower. In fact, different industries may have different natural cyclical periods if left to themselves; and impulses of varying magnitudes in the same industry may tend toward diverse periods of oscillation. Thus some industries may be caught by the general decline because other industries have reached the point of reaction, though they themselves had not come to what would be their own natural period of recession. In such instances they may lag on the down-turn or lead on the next up-turn. In extreme instances an industry may fail to decline with general business, or it may remain prostrate through more than one full cycle. A few dominant industries subject to special conditions may lengthen or shorten one phase or the other of the cycle, affecting the length of the entire cycle in this way. Or the same result may be brought about by purely random forces.

This theoretical picture appears to harmonize with the observed facts of the cycle, including the approximate regularity with considerable variation

both in the timing of the general cycle and in the behavior of the various specific series. It includes the intensified fluctuations of producers' goods and durable consumers' goods, the general behavior of prices, credit and security markets (though the particular relations of credit to security speculation were not gone into), and the behavior of incomes, expenditures and savings. Provisionally assuming it to be a fair picture, as far as it goes, we still have the problem of the various originating factors, and factors in the business system of responses to changing situations. To which, if to any, shall we attach peculiar strategic importance in controlling and determining the character of the result? And which, if any, may themselves be controlled by human action, and so used to control the outcome? This is, needless to say, the heart of the question.

Factors of Controlling Importance

For purposes of summary, we are almost forced to arrange the factors in lists, although this necessarily fails to do justice to their manifold organic interrelations. They fall rather naturally into three groups. The first consists of the 'originating causes', random or otherwise, which we may regard as ultimate for our purpose; the second consists of those elements in the reaction patterns of business which are directly concerned with bringing about the familiar forty-month business cycle. The third group

consists of factors responsible for longer trends and the interrelations between them. Together with the 'originating causes', these may be among the forces responsible for changes in the character and seriousness of the forty-month cycles, or they may possibly be responsible for other cycles of a longer period, or for progressive or chronic maladjustments in the sense of inability to utilize the productive powers we actually possess. In this third group conclusions as to causal relationships are based more on theoretical analysis and less on inductive evidence, and are more tentative in character; but if and when the truth can be discovered about them, they may prove to be no less important than the factors directly responsible for the short cycles—possibly even more so.

First Group: Originating Causes

In this first group belong such random factors as weather in its effect on crops, wars and other chance disturbances. These may have regularities of their own, and they certainly have their own causes; but their regularities are independent of those of the business cycle, and their causes are either non-economic or are outside the regular course of the business cycle. Here belong also such factors as the origination (in contrast to the rate of development and exploitation) of new wants, new goods and new processes and methods of production. These have

their own tendencies of progressive development and are characterized by certain irregularities which are, for all practical purposes, inescapable. These the business system seizes upon, intensifies and converts into cyclical movements whose lengths are presumably largely independent of the timing of the natural irregularities in these basic movements.

In this general class of forces also belong shifts in foreign trade arising from other causes than the state of the business cycle in our own country. So far as business cycles in foreign countries have different timing from our own, they may act as random and originative forces acting on the state of business in this country.

In this group, wars stand out for several reasons. They are particularly serious. They are definitely undesirable, and humanity is developing a definite ambition to control them. And they constitute the only item in the list which seems to be of such a nature as to be really subject to control that might ultimately succeed in removing it as a disturbing influence upon the economic system.

It is also true that the development of wants and the origination of new processes can be stimulated or retarded by the actions of a government or a people. On the other hand, the consumers' ultimate freedom of choice as to the kinds of goods he wants is one of the last things with which we shall attempt any general interference, at least in our dealings

with this grade of economic problem. We are far from ready to begin dictating to him, as a measure for the stabilizing of business, when he shall, and when he shall not, adopt new goods and seek new kinds of gratification. And while we can pour larger or smaller funds into industrial research, we can never guarantee the exact results, how important any given invention will turn out to be, or whether it will come to fruition in 1935 or in 1937. In short, it seems that we may exercise some little control over the longer trends in these matters, if and when we gain sufficient wisdom to know what our welfare demands; but we can hardly hope to reduce the changes to perfect uniformity. There will always be irregularities, and if we have a business system that converts these irregularities into cycles of prosperity and depression, there will always be such cycles.

With the exceptions already indicated, the factors in this first group do not appear to be of great strategic importance for the purposes of humanity seeking to learn what it may do about this great problem. This is partly because there is so little that we can do about them, and partly because, in spite of their possible importance in initiating business movements, they do not seem to determine the character of the result which the business system, under the impact of these forces, brings to pass. To understand the length, timing and specific features of business

cycles and kindred movements, we must turn to the second and third groups of factors.

Second Group: Business Responsès Controlling the Short Cycle

Here the significant possibilities seem to include the following:

(1) The tendency to intensified fluctuations of derived demand for durable goods: both capital equipment and consumers' goods, with possible lesser tendencies of the same sort in the case of raw materials. In the case of capital equipment this includes the tendency to competitive duplication and excess building.

(2) Price movements and the lack of simultaneous and proportionate change in all parts of the price system, including wages and interest burdens. Price movements should be classified into cyclical movements, typically of moderate amplitude, and other movements due to special causes, such as the long decline from 1873 to 1896, the rise from 1897 to 1913, the War-time rise, the sharp deflation of 1920-21 and the second post-War deflation whose culmination marked the present depression. The cyclical movements are important causes of con-

traction and expansion (or of more intense contraction and expansion than would otherwise occur), but they are not, like the other movements, 'originating causes'. Their regularity points clearly to the conclusion that they arise from other cyclical conditions. They are to be explained in terms of factors 1, 4 and 6-11.

(3) Intensified movements of profits derived from movements of money values and lagging interest and wage costs, and from changes in volume of production in connection with the existence of overhead costs which do not change proportionately with output.

(4) Movements of speculative demand for commodities.

(5) Speculation in securities.

(6) The effect of confidence or the lack of it on speculation, on expansion or contraction of business enterprise and on credit purchases generally, including those of consumers.

(7) The dependence of consumers' demand on the volume of income disbursed by businesses. This joins with the previous factors to form a vicious circle, reinforcing itself cumulatively. So much is certain, but the precise quantitative facts are as yet unknown: how closely the movements of these

two quantities correspond and the amount and timing of any discrepancies. These depend in part on the movements of consumers' credit and plus and minus movements in savings, and in part on the following factor.

(8) Shifts in the proportionate distribution of the national dividend between different classes and income groups, taken in conjunction with the diverse habits and standards of consumption and savings of these groups. The effect is instability in the proportions of the national income saved and consumed, beyond what would arise in any case from changes in per capita real income.

(9) The expansion and contraction of credit granted to both producers and consumers, making possible discrepancies between total income and total spendings, or between savings and investment. This has two types of effect. Firstly, it enables the other forces mentioned to initiate changes in rates of expenditures and production with a freedom not otherwise possible. Secondly, it acts at times as an independent force to stimulate expansion or enforce contraction.

(10) The time consumed in financial and physical

preparation for increased production, and the resulting tendency to alternate lagging and hurrying to catch up, by which time an over-supply is in process of production.

(11) The time necessary to work off excess stocks and to develop the need for replacements and in that way to bring about a revival of demand (if not previously brought about by credit purchases or other means) from the excessively low point reached when durable goods are not being fully maintained and kept up to date.

This is a formidable list, though less formidable than the mass of statistical series which describe the whole course of successive cycles. Even this list omits several incidental factors such as the efficiency of labor and the concentration of managerial effort on economies and improvements during a depression, changes in the length of the working day and week and the development of what is called 'technological unemployment'.

Possibilities of Control as Guides to Strategic Importance

All of these eleven factors seem to be of importance, but some are hardly controllable. And they are all so interdependent that, of a group of two or more factors, for example, the demand for capital goods

and the supply of capital funds, it may be that effective control of *either* might serve to control the others also, and to modify the entire course of the sequence.

Those least susceptible to control include those resting on the consumer's freedom to choose what he will do with his income, and those resting on the purely physical facts that govern the time taken by various processes. Business confidence, also, can hardly be controlled directly. Attempts to modify it must act through the more tangible conditions on which it depends. Among the remaining factors, presumably, are those which are of greatest strategic importance to us in our relation to this problem.

The tendency to intensified fluctuations of derived demand, including the demand for the work and materials involved in producing durable consumers' goods, as well as producers' goods, is of basic importance, in the judgment of the writer. If it could be controlled in all its manifestations, the primary result would be a great stabilization of the average rate of productive activity by cutting off those fluctuations of production which exceed the fluctuations of consumers' current expenditures. As a secondary result, consumers' expenditures would themselves be made far more stable than they now are. Thus the effects of stabilization would be cumulative, and the back of the business cycle would be broken. We have already seen that the magnitudes involved,

with allowance for cumulative effects, are sufficient to justify this claim.

While any very close approach to complete stabilization is probably out of the range of possibility so long as we retain even the main elements of the present system of private enterprise, a great deal may still be accomplished if the task is approached with sufficient resolution and open-mindedness. The causes of intensified fluctuations are, in part at least, mechanical relationships as inescapable as the laws of physics: namely, the relation between changes in a total stock of durable goods which is increasing at a fluctuating rate, and changes in the rate of increase of the same stock. No magic of institutional formulae can make these two rates equal. If there is to be approximate stability, there must be some degree of control of the underlying fluctuations.

If there were no such thing as elasticity of credit the difficulty would be largely circumvented, but at a rather heavy price. The elasticity of credit undoubtedly facilitates and speeds the process of capital accumulation by enabling business to secure and spend at any time larger amounts of capital funds than have been furnished for the purpose by prior savings. The ultimate savings can, in a real sense, be furnished later, out of the increased productivity of the processes themselves.[3] To abandon all this

[3] It is not intended to imply that the banks have a magic power to create something out of nothing. They do have power to create addi-

would have a retarding effect on industrial progress; though whether it would be as serious as the retarding effect we now experience from depressions is something no one can prove. If there were no possibility of expanding credit, increased purchases of automobiles and residences would be limited to such current income as the consumer chose to divert from the fulfilment of other desires, and increased expenditures on capital equipment would be limited to that fraction of current income which the consumer chose not to spend, or which the business unit chose not to distribute. Short of this, a completely centralized banking system could, by rationing credit, accomplish virtually any desired degree of regularization. Unofficial private transactions might still transfer funds, but the funds would have to come out of income, not out of the resources of elastic expansion afforded by commercial banking.

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tional purchasing power in the form of bank deposits placed at the disposal of borrowers. This purchasing power does not come out of anyone's *prior* abstinence; but it initiates a process of painless quasi-abstinence consisting simply in the fact that these depositors leave their accounts with the banks until they see fit to spend them, after which the recipients do the same. If the *only* effect of the expansion of deposits were to raise prices, there would be simultaneous involuntary abstinence of a different sort, forced on those who must pay the higher prices while their purchasing power is not increased. But the typical effect is only partly of this character, and is largely an increase in production, with the result that increases of capital goods do not require equivalent *prior* sacrifices in consumption. See H. G. Moulton, Commercial Banking and Capital Formation, *Journal of Political Economy*, XXVI, 849, 868-81, November, 1918.

Even this degree of control is too drastic to be seriously considered at present, but milder forms of control could accomplish much. The possibility of utilizing them effectively will be considered later.

Another line of attack is the attempt to control directly the volume of production of capital equipment and, if possible, of those durable consumers' goods whose fluctuations are governed by the same basic principle of intensification. As to the possibility of this type of control, it is of the utmost importance that these productive activities, at least in the field of capital equipment, are of such a sort that their timing is not immediately and exactly bound up with the movements of consumption or of consumers' purchases (which are the last items we shall probably think of controlling) but are connected with them by ties that admit an enormous amount of play within the business system itself.

This fact constitutes the reason for their intense fluctuations under existing conditions; and at the same time it affords a ground for hope that some of them at least might, under other conditions, be converted into stabilizing rather than unstabilizing influences. This would be difficult in the case of housing, and might prove impossible in that of passenger automobiles, especially so long as changes of style and model are as frequent and important in the trade as they are at present. And even in the field of capital equipment the difficulties are enor-

mous. But it remains true that within this group are found the only industries in which efforts at regularization can with any promise at all be applied directly to the work of production; and that they are of sufficient importance to afford something approaching a cure if the difficulties involved can be successfully overcome.

The hope of control lies in the fact that, while the behavior of this group of industries is natural, under the operation of financial interests as seen by individual producers, it is, with some exceptions, optional and not compulsory to the extent that supplying consumers who come to buy goods, if the goods are on hand, may be regarded as compulsory; or as failing to supply them if they do *not* come to buy goods is compulsory. If producers learn to look at the matter collectively and see that their present behavior is contrary to their joint interests, as tending to produce booms and depressions, they can, if they care enough about it, regularize their purchases of permanent equipment and see that their inventories of goods do not move up and down in such a way as to intensify the fluctuations in ultimate consumers' demand. Even the production of durable consumers' goods can to some degree be regularized, if the problem is attacked with determination.

Even such a degree of control requires a broader and more collective view than is common in business. The steel industry can do little to stabilize the de-

mand for steel; hence it is quite natural if the endeavors of steel producers, so long as they are acting by themselves, are directed to stabilizing prices at the expense of stabilizing demand and output. Action by the purchasers of steel is essential to the stabilization of the steel industry. And such action may not be beyond the reach of possibility when it is fully realized that to stabilize the demand for other commodities—for consumers' goods in general—it is necessary that production and payrolls in steel (taken as typical of producers' goods in general) shall be stabilized in order to remove the focus from which spread the really violent ups and downs in general purchasing power and in effective demand for commodities at large.

The primary method of procedure is to budget capital outlays on a regularized schedule which provides sufficient reserve capacity for all ordinary peaks of demand, and which refuses to be stampeded by the momentary state of the market into violent speedings-up or slowings-down. This is not an easy task. To bring about substantial results would almost certainly require not only cooperation between enterprises throughout a single industry but also affiliations between industries along lines of vertical integration. The steel industry, as already noted, cannot do much to stabilize itself because it cannot by itself stabilize the demand for steel. This has to be done, if at all, by the industries that consume

steel. But as we have also seen, these industries, in turn, stand to gain through the general stabilization of purchasing power if the whole program is successfully carried out. Thus there is a mutual interest which should be strong enough to produce fairly adequate action, if industry can be organized in such a way as to make this interest effective. Whether this degree of organization can be brought about without going so far as to make the system of private enterprise impossible is a question which can be answered only by the process of experiment. At the least the change would be an evolutionary movement going a long way toward a system decidedly different from private enterprise as we now understand it. Not less than a generation would probably be required for business to make the necessary mental and material adjustments, and a delay of this length has its own element of danger. To assume that the economic system will give us unlimited time to find cures for its worst evils is not wise.

The same principle of regularization might, to some extent, be applied to residential construction, though under greater difficulties, since consumers can hardly be expected to organize to budget their collective expenditures on any such long-range program. The pressure would have to come from commercial builders, and would need to involve building ahead of demand to a considerable extent. In the case

of automobiles, these methods offer little prospect of a stabilized production in the face of unstable demand. Here the control of credit extended to purchasers appears to afford the only effective hold.

Thus it appears that these factors are strategic in that they are potentially subject to control, and that through them something substantial may be accomplished. But this can be done only by difficult and far-reaching measures—measures which we do not seem to be prepared at present to take. This is quite natural, but it argues that we do not yet realize the full gravity of our situation.

If efforts to stabilize private activity in these fields fail, there is always the possibility of using public works to redress the balance. If private activity expands too intensely let public works contract, and if private activity contracts, let public works expand. This is not the place to discuss the whole theory and practice of the control of public works, or the obvious difficulties involved; we may merely note that public works are a section of this entire field in which the worst disturbances lie and from which they spread, and that they are a section of the field inherently susceptible to control, which could be used as far as it will go to neutralize the movements in the rest of the field. The amount of public works which could, within reason, be concentrated in dull times, does not appear from the figures as likely to be large enough, by itself, to counteract even a mod-

erate depression.[4] Such a policy could succeed only as part of a much larger program.

If such a policy is undertaken, the method of financing is of vital importance, as affecting another vital factor: namely, the movements of total purchasing power. Financing by means of taxes which operate to decrease private expenditures will tend to neutralize the effect of expanding public works as a stimulus to total economic activity. Financing through the use of credit will tend to give it maximum effect, and the timing of repayment of the credit will also be of great importance. Repayment should be made so far as possible in times of active business when a brake rather than a spur is needed.

Passing on to price movements, and the corresponding changes in the other elements of the price system, here also we have forces of basic importance. The present system is a hybrid: neither free nor stabilized, but free in parts and resistant to change in other parts. This situation could be altered by more complete stabilization or by the attempt to bring about more consistent fluidity. Either might work better than the system now prevailing. And if instability of price levels is accepted, the attempt might still be made to stabilize the personal incomes of different classes, in the hope that this will result

[4] See Wolman, *Planning and Control of Public Works*, published by the National Bureau of Economic Research with the collaboration of the Committee on Recent Economic Changes, New York, 1930.

in more stable expenditures and so tend to reduce indirectly the cyclical fluctuations of production and prices. At present we are not wise enough to choose with certainty between these possible courses. We do not know just what behavior of the price system is most desirable, just what system of regulation can best be used to bring it about, or just what adjustment of personal incomes will best promote the ends in view. Thus we are not mentally prepared for the effective control of the price factor. Nevertheless it must be classed among the major factors which are at least potentially, and to a considerable extent, controllable.

Stabilization of prices is not impossible. It may be approached through control of the currency system, or of credit, or of both. Or it may be approached, less usefully perhaps, by direct control of each separate part of the price system. Stabilization of the general level of prices would have the advantage that it would carry with it, without further need of control, stabilization of profits, of the distribution of income, and to some extent of the more damaging features of speculation in commodities and securities. If the prices of particular commodities were left free to move within a stable price structure, profits and losses would not be eliminated, but they would be freed from the perversions we have noted, which play so large a part in producing and intensifying undesirable general fluctuations. They might then

perform their proper functions of stimulating the growth of efficient enterprises and the decline or elimination of inefficient ones, and of serving as a signal of shortages or surpluses of particular goods here or there in the economic system, and furnishing the impulse to make good the shortage or eliminate the surplus. The result would be a vast improvement over a system which gives the same signal indiscriminately for industry in general and so either stimulates further general expansion when industry is already over-stimulated, or further contraction when it is already depressed.

Passing on to the control of incomes within an unstable price system, we find that the apparent sources of instability in our hybrid system are of two different sorts, giving rise to two divergent policies. One apparent evil is the instability of incomes, the other the rigidity, or sluggishness of response, of the unit costs of labor and capital. Interest charges are largely fixed in money terms, and salaries and wage rates are relatively sluggish in their movements, while personal incomes from profits are partially stabilized in the case of dividends paid by those corporations which are strong enough to afford adequate reserves for this purpose. Thus we actually have a certain approach to a system of stabilized money incomes, but not a consistent approach. In particular, a sluggish movement of wage rates is not the same thing as stabilization of wage-

earners' incomes. In fact, by rendering the unit cost of labor unresponsive, it may aggravate unemployment in dull times sufficiently to make the instability of wage-earners' incomes greater rather than less.

Thus certain features of the situation point toward the desirability of making personal incomes more stable than production, and thus breaking into the vicious circle whereby incomes fall because production has declined and production declines further because incomes have fallen. Other features of the situation point toward making the unit costs of labor and capital more responsive, and thus mitigating the intensified fluctuations of profits which, as we have seen, have such a disturbing effect. And of neither of these policies can it be said that we know with certainty what its full effects would be.

The first of these policies comes to grips with the problem of the dependence of consumers' demand on incomes and the dependence of incomes on the rate of production. This, as just noted, is one side of the vicious circle of depression—to borrow a figure of speech from Lewis Carroll's caterpillar, who assumed that a circle had two sides. At first sight the dependence of demand on income seems an inescapable fact; and indeed in its main outlines it is. But its action is susceptible to modification. There is every reason to suppose that the variation of consumers' expenditures is not identical with the variation of incomes, even now; and the discrep-

ancies may be made to work in the right direction rather than in the wrong one by a well-considered use of the mechanisms of credit. Furthermore it seems certain that we can, if we wish, make the flow of income to consumers steadier, relative to the total national dividend, than it now is; for instance, by means of unemployment reserves. We must, however, watch the reactions of any such policy on the investment markets; and also make a wise choice of plans in order to put the burden in such form as to afford a maximum incentive to industries to stabilize, and a minimum inducement to workers to malinger.

We have already seen that the partial stabilization of dividends does not stabilize total purchasing power, but rather concentrates its fluctuations upon the element of corporate surplus and undivided profits, and upon the demand for the things on which these funds are spent. This fact has a moral for the many who are hoping that unemployment reserves may help to stabilize consumers' expenditures. They may be made to have this effect, but it will not follow automatically. The result will depend on the use made of the reserves, and on whether independent measures are taken to stabilize production in those fields into which the funds constituting reserves are likely to flow, in the process of being invested; and out of which they must come when the reserves are drawn down in an emergency.

Without stabilization of the production of capital equipment and other producers' goods, attempts to stabilize consumers' purchasing power by the setting aside of reserves, either for dividends (as is already done) or for wages (as is proposed) are likely to be baffled by the indirect effects of the uses to which the reserves are put while they are being held as reserves, and from which they must be withdrawn when they are paid out to beneficiaries.

If the reserves are put into securities, to be sold when benefits are to be paid, this means systematically buying in a dear market and selling in a cheap or demoralized one. Aside from the losses to the funds, such a policy might well aggravate business disturbances more than the distribution of benefits would mitigate them. A better plan would probably be some definite provision whereby such securities could be realized on by being used as a basis for loans which might serve to neutralize some of the shrinkage in bank credit which accompanies a depression. To be effective, this might require the provision in advance of emergency credit organizations, rather than setting them up after the emergency has become serious. For part of the funds, 'hoarding' during prosperous times may prove the safest and least disturbing form of investment.

The other policy we are considering—that of making unit costs more responsive—points toward the adjustment of wage and interest rates in terms of

an index number of prices, so that the sluggishness of their adjustments may be, so far as possible, overcome. To be effective, this requires that interest on long-term loans be not fixed in money, but adjustable to a constant purchasing power. Wages and current interest rates may sometimes keep pace with prices, but fixed interest on standing loans never does. Such an adjustment would remove one chief cause of the misleading and perverted state of generally swollen profits. It would not, to be sure, eliminate the disproportionate variation of indirect labor and output which is based on mechanical facts about which there is presumably nothing to be done. What can be done, however, is to alter further the surrounding conditions of the wage contract so as to change the financial effect which this unequal variation has on the profits of the company and indirectly on the earnings of the wage earner. The most obvious measure of this sort is to lay a special charge on super-active employment to sustain out-of-work benefits in times of depression.

Clearly, the wage system will not cease to act as an aggravating factor in the business cycle until it ceases to be based on relatively stable money rates, measured in terms of a fluctuating standard of value, or on rates that lag in their adjustment. It may or may not be correct policy to maintain real wage rates in a time of depression. But it is certainly not correct policy to maintain uncompromisingly a system which

causes real wage rates automatically to fall as profits rise and business over-expands, or to attempt to maintain rates which mean an actual rise of real wage rates as profits fall and depression spreads and intensifies. Yet this is—or would be—the result of sticking to fixed money wage rates at such a time. Any attempt to do this is probably bound to fail in its immediate objective, while if it succeeds, it cannot possibly result in stabilizing actual earnings.

This difficulty has been seen in an unusually intense form in the present depression, because it has occurred simultaneously with an enormous world-wide collapse of prices of a basically non-cyclical sort. It must be admitted that the average cyclical rise and fall of prices, and especially of costs of living, is so moderate that a system which should, for example, automatically adjust wage rates to a cost of living index, would have only a small effect either on the worker or on his employer. Its great usefulness would arise in precisely those instances in which the cycle is complicated by larger price movements of a non-cyclical character. Wage rates based on a wholesale price index would have more effect in stabilizing the real costs of business. To the wage-earner, they would mean that a standard week's labor would automatically yield increased purchasing power in the retail markets during business prosperity and decreased purchasing power during depression. The effect would probably be salutary,

even from the standpoint of stability of real earnings for the workers, because it would remove one of the forces tending to aggravate instability of employment. If we had a clear choice between stable wage rates with unstable employment, and unstable wage rates with stable employment, there could be no doubt which is preferable.

All of which does not mean that business cycles are to be cured by such simple devices as a change in methods of wage payment. That would merely remove one aggravating factor, leaving other and more fundamental causes to be otherwise dealt with.

Speculation in securities is also difficult to control; indeed complete control and genuine speculation are contradictions in terms. And speculation may be affected by whatever is done in other fields, in unexpected and surprising ways. If restraining measures prevent funds from being used directly in business when they are searching for employment, the stock market is a natural substitute outlet. If unemployment reserves are accumulated in good times and drawn upon in times of depression, that may mean investing the funds in securities when the market is high and realizing on them when it is low, thus tending to aggravate both conditions. Such funds can probably be so handled as to avoid this danger, but it is a very real one, constituting a rather difficult problem to be met. In general, however, stabilization of production and of aggregate income should

reduce the fluctuations of the free funds which find employment in the market, as well as increase the stability and certainty of earnings. Aside from setting limits on gambling types of transaction that make irresponsible use of other people's money and on the flow of other people's money into such uses (if possible), and setting higher standards for the securities themselves, it appears that putting the brakes on speculation must come, if at all, mainly as the result of action taken elsewhere for the stabilization of prices in general or of production in the critical fields. Speculation is an active factor, but our main power to control it is by indirect means.

The behavior of credit has already been mentioned in other connections as a factor of major importance. It is one of the most humbling factors to consider, for the reason that we have thought ourselves in a position to use it to some extent as a lever for control; and we find that we not only have not been able to make it do just what we wish, but also do not know precisely what we ought to try to make it do. And we entertain the suspicion that the organized machinery for controlling credit is not so all-powerful as we have often supposed. Certainly it is a mistake to expect the existing forms of credit organization to perform miracles in guiding the course of business.

The control of discount rates is probably not in itself sufficient, and there is not at present any ade-

quately effective means of controlling the total volume of credit directly; still less of discriminating wisely between the different uses to which it is put. So far as concerns the influencing of consumers' expenses, credit in this field lies outside the scope of our present institutions of control. But this does not mean that stronger and more positive mechanisms cannot be devised, if the need seems sufficiently urgent.

Here again we have the problem how far control can go consistently with the continuance of private enterprise and of the competitive principle. And here again complete control and private competitive enterprise are contradictions in terms. Nevertheless this is perhaps the most all-pervasive agency conditioning the course of business, organized for control to a limited extent, and with possibilities of controlling influence which go far beyond anything yet demonstrated.

The reader need not be reminded that the purpose of these excursions into the field of control is not to frame a specific policy or to recommend particular measures; but rather to shed light on the question which factors among those responsible for business cycles are of the greatest strategic importance. For this purpose it is not necessary to select the best possible devices, but only to show that some form of effective control is possible. Factors we can control are for that reason of peculiar importance to us,

as human beings faced with a baffling and threatening problem. Such a canvassing of possibilities should, indeed, be a step toward the framing of a program; but the achieving of this final goal is a much longer and larger task, and one of a different sort.

From this standpoint, then, our study has revealed a number of factors as peculiarly strategic. Among these are: the intensified fluctuations of demand for productive equipment; and secondarily of demand for durable consumers' goods (which are less easily susceptible to control), price movements, movements of unit costs and of personal incomes, and the movement and distribution of credit. The all-important factor of profits is itself controlled, in its cyclical movements, by these other elements which condition it. Of secondary importance (still from the standpoint of control) is speculation in commodities and securities. This may, however, like profits, be influenced indirectly, via the factors which govern its movements. To all these causal forces the inherent possibility of control lends a commanding importance.

Third Group: Factors Responsible for Longer Trends

In this group belong the longer business trends, so far as they present problems of adjustment in the attempt to make full use of our powers of produc-

tion. These longer trends are based on some of the originating forces already listed, such as inventions and the development of standards of living, and are modified by the business system of responses. Among their most important features are discrepancies between the rates of change of different economic factors, and the processes and problems of adjustment resulting from these discrepancies. Here are included the following factors:

(1) Long-run trends in the development of new productive processes, tending to increase productive power and to call for more capital per worker. Here we have the development of mechanization which, if not properly compensated by adjustments of hours and incomes and the development of new goods, may lead to 'technological unemployment'. Irregularities in this movement are among the causes of short cycles, as we have seen.

(2) The development of new goods into which to put our increased producing and consuming power. If this process lags, our producing power may not be fully utilized. Here we have also the increased development of durable goods and of 'optional purchases' incident to a rising standard of living, which, as we have seen, have their

effect on the character of the short cycles.

(3) The balance between consumption and saving. A rapid increase in incomes may lead to 'over-saving' in the sense of a rate of saving too rapid for us to make the adjustments necessary to assimilate it, as our present system is geared to make them. This balance between consumption and saving is affected in turn by the following factor.

(4) The distribution of the national income among different income groups, which is at present mainly affected by the proportionate distribution between wages and property income.

(5) The relation between wages and interest in terms of their influence on the relative costs of labor and capital to employers, which in turn has an effect on mechanization and on the absorption of the supply of labor into productive employment. As we have seen, the requirement of labor costs low enough, relative to interest charges, to stimulate full employment, may be out of harmony with the requirement of labor incomes large enough to assure adequate consumption, unless changes are made in the system of distribution which

are more far-reaching than mere adjustments of wage rates.

(6) The apportionment of increased productive power between more goods and more leisure, as affected by the length of the standard working day and week. Here, as we have seen, there may be a discrepancy between the length of the working week necessary to absorb the existing labor supply, all the other factors being as they are, and the length which represents a desirable balance for the worker himself between more goods and more leisure. And as we have also seen, full use of our actual powers of production for the proper satisfaction of our wants for goods and for leisure requires an adjustment between all these factors, such as we have not yet learned to make.

(7) Among the forces of more enduring influence belong certain after-effects of the World War, especially the deflation of prices, the dislocation of international trade and indebtedness, and the weakening of foreign financial and economic structures. These are disturbing forces of the first magnitude, whose effects have come to a head only in 1929 and the subsequent depression. An incidental factor is the effect on our do-

mestic capital markets of the repayment of our own domestic war debt.

(8) In this group belong perhaps those larger psychological swings from over-pessimism to over-optimism which seem to require more than the length of one short cycle to develop their full effects.

When we come to consider the possibility of control, as a guide to the strategic importance of these factors, we find truly interesting problems. As compared to the problems of control raised by the shorter business cycles, there are some increased difficulties and at least one rather pregnant new possibility. In general, of the factors listed here, those which can be controlled for one purpose can be controlled for the other, if we can only decide what they should be made to do.

The long-run trend toward more efficient productive processes, while not beyond all possibility of control, is not a thing which government will lightly undertake to limit or even to guide. Labor has some power to limit the introduction of labor-saving devices, but this is far from being a policy of collective control. It is possible also for government to take a hand in promoting the development and adoption of safety devices, as is done by the Bureau of Mines, which are not of a labor-saving character. But this again is not likely to lend itself to a deliberate con-

trol of the net rate at which labor-saving improvement proceeds, in the interests of a considered program of 'economic balance'. In the main, the course of technical invention represents the force to which other factors must adjust themselves.

Much the same could be said of the development of new goods. The motive of profits is a powerful stimulus to private business in precisely this direction; and while it may be strengthened or supplemented, it would be optimistic to expect very radical changes to result from public efforts directed to this end. And the psychological factors, as we have seen, are mainly to be influenced by indirect means.

The after-effects of the World War form a special group of problems. Among them price movements, trade barriers and international debts are definitely within the realm of international action. Such action could go far toward restoring weakened financial structures, and even toward mitigating underlying economic weakness so far as it arises from the splitting-up of Europe into uneconomic national units. Hours of labor and the distribution of the national income are also clearly subject to control.

The balance between consumption and saving may prove more difficult to deal with, even granting the possibility of defining the desirable goal. The choice of how much of one's personal income to spend and how much to save is as definite a part of the realm of personal liberty as the choice of what kind of goods

to buy, and is almost, if not quite, as unlikely to be directly controlled. And whatever is done, within reason, to alter the distribution of income between wages and incomes from property, the mere upward movement of per capita income will tend to cause a larger percentage of the increased income to be saved. Workers of many grades contributed large amounts to the swollen flow of savings during the last boom, and granted resumption of progress they will do so again.

Yet there are possibilities of influencing the flow. Increasing amounts are saved by corporations; and if a reduction of the total is really desired, this portion could be reached by the taxing power or otherwise. And there is another series of measures which might have an effect in one direction or the other, in ways to which apparently little serious attention has yet been paid. These are the measures of institutionalized saving which are grouped under the general head of 'social insurance'. Would the general spread of such measures increase the total amount of savings or decrease it, over a period measured in decades? Some are rather casually taking for granted that the security provided by social insurance and especially by unemployment insurance will make workers more willing to spend their free incomes for consumption, since there will be less need to build up individual reserves against emergencies. But granting that there will be an effect of this sort,

will it be sufficient to outweigh the huge reserves which the insurance systems will themselves require?

The answer is far from clear. In the insurance reserves, all workers in the insured classes will be represented, whereas not all of them would save voluntarily as individuals. On the other hand, a given amount of saving will provide far more security if put in the form of social insurance. In particular, insurance reserves are calculated on the basis of spending principal as well as income before the transaction is closed, whereas individual savings are to a large extent made with at least the hope of spending only the income and maintaining the principal as a permanent asset. This is especially true in the United States, where the custom of buying annuities is far less widespread than in some European countries. Thus the substitution of insurance for private saving means installing a system under which there will be more spending in proportion to the capital funds accumulated than under the system of private saving in those cases where the saver succeeds in realizing his ambition to maintain his principal intact. Over against this stands the fact that the lower-paid wage-workers as a class do not typically succeed in realizing that ambition. The crises of their lives usually force them to spend their principal; and not much of their accumulation is permanent. Thus the extent to which insurance would substitute the ultimate spending of one's principal

for the permanent maintenance of it remains in doubt, and may depend on how far the principle of social insurance is extended upward into the better-paid groups whose members have already achieved a moderate measure of security and economic stability. Another important factor will be the adequacy of the reserves accumulated: whether they are made sufficiently large to meet all demands, or whether serious emergencies will exhaust them and necessitate the use of public credit to maintain benefits. If the latter policy is followed an increase of capital accumulations may be avoided—at a price.

In short, one of the important features of the spread of social insurance is its effect on the balance between saving and spending. This effect cannot be definitely predicted, but can to some extent be governed, as the system develops, by changes in the extent, character and policy of the system itself.

Thus we see that a considerable number of the factors concerned with the longer trends have that grade of strategic importance which arises from our power to influence their action. The problems involved are subtle and difficult, and there is no likelihood of our reaching a quick solution of all of them, and guiding the forces of economic development into a regular course of unbroken and unmarred progress. But the potentiality exists and to that extent the forces we have dealt with are of especial strategic importance.

Next Steps—the Place of Research

These, then, are the factors of most strategic importance in the business cycle and kindred illnesses of business, so far as this study has served to reveal them. They do not offer any easy and simple formula for the solution of these distressing problems. They indicate no panacea; they point rather to a deal of difficult experimenting with new methods of organization to accomplish new ends—difficult and perhaps not without danger. There is danger of going too far to turn back, on roads that lead to destinations we would not most of us consciously start out to reach. There is danger of setting up measures of control before we are wise enough to know just what to do with them and how to use them in the right way. And there is danger of doing nothing until it is too late, waiting to know just what to do—waiting perhaps for students to tell us things we can learn only from experience and to prove to us matters not susceptible of exact proof. We need more statistical information; we also need statistics not gathered merely to describe things but oriented to the provisional diagnoses which need to be tested, and to the needs of a program the main characteristics of which can be outlined with the knowledge already at hand.

It is clear from the foregoing study that a more adequate diagnosis of business cycles waits on a more

fully-developed statistical picture of the main quantities in the interrelated network of factors that governs our economic life. More knowledge is wanted as to incomes, consumers' purchases, savings, investment and the purchase of productive equipment and of producers' goods in general, production and stocks of goods and credit. Rough approximations are useful as far as they go, but they fail to answer some of the crucial questions raised by existing theories. For this purpose the student will not find his material sufficient until the figures are accurate enough to reveal minor discrepancies between these very large totals; and until they are recorded at short enough intervals to enable him to detect short leads and lags. He needs to know whether consumers' expenses fluctuate more or less than consumers' incomes and whether either leads the other; and what discrepancies exist, if any, between savings and capital expenditures for producers' goods.

In the case of stocks of goods, we have seen that there is need not only of more complete figures, but of figures grouped according to the significance of these stocks in business cycles. As already indicated, some represent willingness to buy or to produce in anticipation of demand, and others represent inability to sell. Manufacturers' stocks of materials have a different significance from their stocks of finished goods. More important probably is the fact that an increase in some kinds of stocks indicates an

increased amount of work done and paid for, compared to volume of sales; while the volume of agricultural products varies so much with weather and other natural conditions that they have very little significance of this sort.

In the case of credit, we have seen that there is need, not only of more accurate figures of consumers' credit, but also of a general segregation of loans according to the uses to which they are put: whether to finance consumption, production of consumers' goods, production of producers' goods, or speculation in commodities or securities. Volume of deposits and volume of loans also reveal different features of the credit situation. Volume of deposits, multiplied by rapidity of circulation, belongs in the estimate of the total flow of purchasing power, and under normal conditions constitutes over 90 per cent of this flow. Increases and decreases in the volume of loans going into any given use give an indication of the extent to which the volume of purchasing power available for that use exceeds or falls short of the amount received from current income.

One phase of this matter which presents an extremely knotty problem is the question what finally becomes of the funds (so largely derived from credit) which flow into the securities markets during a speculative boom. The proximate and ultimate effects of such a flow on expenditures for producers' and consumers' goods are very important to know,

in attempting to diagnose the relation of movements in the securities markets to general business cycles.

If the stabilization of the work of installing capital equipment is of central importance, knowledge of the facts in this field is correspondingly vital. One of the first things which will be wanted is better evidence of the extent of excess capacity, present estimates being bafflingly inconclusive for the purpose in hand. The crux of the problem lies in the fact that a given amount of theoretical capacity does not mean that industry is actually equipped for continuous production under normal working shifts and normal operating conditions, at the rate which the theoretical capacity seems to indicate. This is true for four main reasons. One is the existence of seasonal peaks which cannot easily be removed. For example, mid-summer production of Portland cement is approximately double mid-winter production.[5] A second is the lack of uniform standards of normal working shifts.[6] A third is the fact that some reserves are necessary to provide against interruptions and the need of repairs. And a fourth is the fact that reserves even beyond this amount, when they consist of semi-obsolete equipment, still do not represent a real surplus for purposes of continuous

[5] See Robert F. Martin, Industrial Overcapacity, an analysis of figures compiled by the United States Bureau of Foreign and Domestic Commerce, *Bulletin of the Taylor Society*, June, 1932, p. 99.

[6] *Ibid.*, p. 94.

operation, because they are not economically suited to such use. There is, then, vital need for distinguishing between different grades of equipment on a basis which is pertinent to the practical needs of the case.

Semi-obsolete equipment has typically higher operating expense per unit of product than that which is up to date, but lower overhead costs, since it represents little or no investment. As a result, it may represent the cheapest way to handle occasional peaks or emergencies, as it would be too expensive to keep first-rate equipment idle most of the time for the sake of such occasional service; while at the same time the semi-obsolete units might be quite uneconomical for continuous service, on account of their high operating cost. Excess capacity in the primary sense exists only when there is a surplus of equipment of such quality as is economical to use for regular, as distinct from occasional, service; and this fact indicates the first and most important line of distinction to be drawn between equipment of standard and substandard quality.

The rate at which equipment is approaching and passing this dead-line, coupled with the normal growth of the industry, is the gauge of the effective demand for new units for replacements or enlargements; and this is the vital factor in any program of stabilized capital expenditures, involving as it would

the drawing up of a budget looking some years ahead, if only as a goal to aim at.

Another obvious field for research lies in studies of the effects of policies which have been actually followed, in all the many areas of action which affect business cycles. It will not be easy to disentangle the effects of a given policy from those of the ever-varying conditions under which it is carried out; nevertheless the attempt should yield some useful results. One of the fields which should be covered consists of the efforts which have been made to put the otherwise unemployed to work producing goods for themselves and for each other, on a self-sufficing or a barter basis. These should be studied in the light of the possibility of linking up the widespread local experiments into a nation-wide network which would have a better prospect of efficiency through more adequate division of labor and operation on a larger scale.

Another way in which statistics can render service consists in studies looking to the setting of standards of possible achievement on a national scale. Business has developed the technique of standard-setting as one of its indispensable tools; and when the nation begins to think in terms of developing its national capacities, it also has need of standards as guides to its efforts. Estimates of this sort in the past have been one-sided and uncritical, drawing vague conclusions of vast unused capacities but without linking them

up with the question of potential demand: of the concrete forms in which the results of such productive powers could be usefully put.

What is really needed is a serious canvass of the standard of living available to our people under reasonably full utilization of our powers of production; such canvass to be put into terms of housing space, bathtubs, refrigerators, central heating, clothing, automobiles and other goods, as well as improved education, medical service, recreational facilities and leisure. Such a survey would need to be based on the records which show how groups with different incomes actually direct their spendings. And it would need to take account of the effect of a slackening rate of growth of population, and of the stabilization of the production of capital equipment which is one prerequisite of the achievement of anything like full utilization of our powers of production.

A corollary of such a study would carry us into the problem of the distribution of spending power necessary to give effect to any given potential standard of living on a national scale. Another corollary would be a recognition of the likelihood of increased savings under the conditions contemplated (including the possible development of collective reserves for unemployment and old age), and a correlation of such savings with the volume of investment needed to equip the program at existing technical standards,

and the possible field for further developments of capital investment, public and private. Such studies go far beyond the scope of mere statistical records of established facts, and are exposed to corresponding uncertainties; but there is no less need for making them, to the best of our ability, and revising them as new experience sheds new light.

When statistical studies have done all they can do, there will always remain the question of devising new policies and new instrumentalities for carrying them out. Here factual research can be of but limited usefulness. It may help to prevent the repetition of past mistakes; but the final verdict must be given by the process of experimentation, or of trial and error. The stabilization of capital expenditures, for example, requires the forming of new types of organization; and research in the ordinary sense cannot tell us how to do this. If experimentation waits for the completion of an adequate program of research, we shall make little progress. The two lines of attack on the problem must advance hand in hand.