

THE
SCIENTIFIC
APPRAISAL OF
MANAGEMENT

A STUDY OF
THE BUSINESS PRACTICES OF
WELL-MANAGED COMPANIES

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THE SCIENTIFIC
APPRAISAL OF MANAGEMENT

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P R E F A C E

CONTROL of the average corporation, evolving under the pressure of social and economic forces, now rests firmly in the hands of managements which seldom consult with stockholders beyond the bare requirements of the laws of incorporation of their states. A. W. Robertson, Chairman of the Board of Westinghouse Electric and Manufacturing Company, puts the matter forthrightly:

Good management is the rule of the best minds. It is anti-democratic, although private organizations flourish best in democratic countries. However, the democratic rule of the majority will frustrate and defeat any management. The crew cannot run the ship.

Mr. Robertson's statement is unusually apt. The corporation is not a democracy in any real sense. The stockholder in the majority of cases must take the management on faith. In but few cases has that faith been deliberately betrayed. Even the T.N.E.C. has reported: "By and large, however, the stockholders of the giant corporation have little of which they can complain. The requirements of security and liberal returns on invested capital are largely met by the managers of these companies."

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For practical purposes, then, the problem facing the owner or prospective purchaser of stock is not that of defining his social relation to management. It is the different one of devising means whereby the special qualities of individual managements can be measured.

The stockholder is not alone in this concern. Despite his nominal ownership, his interest in the wise administration of his property is no more immediate or direct than that of the nonstockholding public. For today's citizen lives his life within the framework of corporate activity. He is employed by it in days of its prosperity; becomes workless when its functioning is impaired. The corporation is the immediate source of food to the city dweller; the immediate market for the farmer. The raw produce of the nation enters its possession as inventory; leaves it as finished goods by which the people live and work—and which they can buy in no other market. Not even the subsistence farmer can live his life outside its influence. His fertilizers and insecticides are corporation products; the clothes he wears, the tools and farm implements he uses are produced in plants owned by corporations and are distributed through their sales organizations. Our network of corporations forms the skeleton of our society.

This development is a consequence of the minute specialization which has replaced the crude division of labor observed by Adam Smith. The joint-stock corporation is the organic expression of this specialization. Each corporation plays its specialized part in the social production of wealth; its own specialization within the economy has its internal counterpart in the still more minute specialization of functions within the enterprise.

Insufficient attention has been paid to this fact. The corporation, it is claimed by some, is an instrument through which the small money hoards of private individuals are surrendered into the control of the dominant figures of industry. There is some truth in this assertion but what is overlooked is the fact that the money holdings of the average man are too small to serve as capitals. Their exchange for stock in the joint-stock company is a process of concentration, no doubt, but this concentration is a means of release of the creative potentialities of the stored-up labor which savings represent.

For the corporation is simply a way of doing things; not a different way to do the things the world was capable of doing before the corporation was born but a method of performing tasks which no previous type of economic organization could accomplish. Pooling the nation's scattered money holdings into huge and concentrated industrial capitals has transformed sterile money hoards into creative social tools.

Because corporate control has been severed from ownership and because no citizen in our modern world can live outside the influence of the joint-stock company, it behooves us to develop standards of measurement of corporate conduct. In one sense, the establishment of a method of management evaluation takes up where Berle and Means left off. Their work, *The Modern Corporation and Private Property*, frankly stated in its opening chapter: "The changes in internal organization—the relationship of the corporation to its workers, its plant organization and its technical problem of production—we cannot consider at the present time. Nor can we deal here with its external

relationship, on the one hand with its customers—the terms on which it furnishes to them its products or services—and on the other hand, with the political state—the government by which it may be in some sense controlled, or over which it may have a measure of dominance.”

But that is the whole subject matter of the modern corporation! Its institutional form is not separate from its functioning. Its place in our social organization is neither more nor less than what it does and how it does it. Its internal organization, “The relationship of the corporation to its workers, its plant organization and its technical problem of production,” are the corporation in its entirety. Evaluation of corporation management is therefore evaluation of the corporation itself.

Unfortunately, whatever may have been done in private, no public attempt seems yet to have been made to appraise the demonstrated ability of individual executives in any single instance or to classify the successes and shortcomings of business organizations by departments. The public has therefore been led to hasty judgment of corporation managements based upon exclusive attention to the size of earnings in recent periods, to the duration of dividend payments, or to the prominence attached to the names of the officers and directors.

The trend is away from such pragmatic evaluation and towards more systematic judgment based upon more profound knowledge. More than twelve years ago, while working out and codifying my own thinking on the subject, I published in pamphlet form “Five Tests of Management” which was distributed to corporation officers throughout the United States. The comments aroused by this brief

work and the subsequent exchange of views with hundreds of chief executives, as well as the continued request for the pamphlet even at this late date, offer convincing proof of a live interest in the question of a scientific approach to management measurement.

The need for such a work having been thus demonstrated, the problem of approach still remained. Throughout the years during which I have been preoccupied with this matter, I have drawn up and progressively refined an evaluation chart and a management questionnaire by application of which, in company after company, organizational defects unsuspected even by the officers have been uncovered. The method has met that most important test of method. It has worked.

How to present this method to the public, however, has been a matter of concern. Had this text expressed an unmistakably clear opinion on each point developed, the impression would have been created that a business organization can be weighed as exactly as a sack of flour.

No one is better aware than I that this is not so. Any category in the world of business must necessarily be arbitrary. The coextensiveness and overlappings of apparently autonomous units prevent any category from being final. Yet without categories no logical thought can be developed.

The conclusion was reached that the case history approach was indispensable. Such an approach has shortcomings, principal among them being the fact that generalization from a single example might prove invalid. This drawback, however, was not of sufficient importance to warrant rejection of the approach. The examples quoted, and which perhaps are too numerous, have in all instances

been chosen deliberately as expressing important general principles.

This is true of the historical analyses also. The management problem, even within the same corporation, changes as time goes by. Realization of this fact is of the utmost importance. Simultaneously and side by side, within our economy are thousands of private corporations each at a separate stage of its evolution. Alongside older—and sometimes decadent—companies stand young and vigorous rivals whose appearance of superior management is often ascribable merely to their youth and to the fact that they have not yet passed through the stages in institutional growth which are long past in the case of the older enterprises.

Therefore, in the complex field of management evaluation this is the main problem: to decide exactly where to start; by what process of logic to proceed; how to resolve factual observations into objective evaluation. Business executives; students of business administration—especially those in our graduate schools; bankers concerned with appraising the credit rating of potential borrowers; underwriters who must assume the responsibility for gauging management quality before urging the public to invest; stockbrokers and investors needing to learn more about corporate operations than is revealed in the usual statistical manuals; fiduciaries and others whose task it is to keep a close check on corporate development—all meet the self-same problem daily.

It is to such groups that this work is addressed. While it cannot predigest for the reader the detailed knowledge necessary to sound judgment, it can, through rational ap-

plication of the management questionnaire, help him arrange in usable order items of information which otherwise might assume no distinctive meaning. That is the role which this book, and the questionnaire, are designed to play.

It would not be fitting to close this preface without expressing my gratitude to Col. J. Edward Johnston who suggested more than one important change, particularly where interpretation of facts was concerned and where my own thinking promised to strike somewhat wide of the mark; to Mr. Alfons B. Landa whose profound knowledge of the business and legal aspects of corporate organization has been placed so readily at my disposal; and to Mr. Terence McCarthy whose critical researches into the economic evolution of our institutions has contributed so significantly to the development of this thesis.

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I

Defining the General Problem

OVER the term mismanagement there can be no dispute. It is commonly understood to mean the unwise, inefficient, and perhaps dishonest conduct of affairs. It conveys overtones of moral or intellectual laxity. On the other hand, the term management, in its increasingly common usage, conveys no overtones whatever. We have grown used to employ it to signify not a comparative standard of executive values but a mere status within our social structure.

We think of "Management versus Labor," seldom of "Management versus Mismanagement." This semantic distortion has led to a blunting of the tools of appraisal. For the function of leadership within the corporation is the expression not only of the status accorded it by law, custom, and function but of the personal qualities of individuals, so organized and coordinated that the expert faculties and highly special skills of each component of the leadership group contribute to the collective attainment of a defined purpose. Management, in brief, is that human segment of the corporate structure upon which converge

the demands of consumers and which transforms consumer demand into effective and economical performance of the corporation's function.

Intimate knowledge of a company's officers is therefore the first indispensable step towards management appraisal. For not even the most finely elaborated theories of management can be applied indiscriminately even to companies which appear to fall into closely similar categories.

In the world of business, surface appearances are often deceptive. An apparent stroke of business genius may be the simple product of the pressure of circumstances. A fundamentally grave error in business judgment may be the product of just as rational and logically consistent a process of reasoning as a more accurate judgment would have entailed. A management judged solely by the results achieved may be sorely misjudged. There are many examples of first-rate managerial brains being unable to implement their plans from simple lack of the financial means to undertake the sort of reorganization needed to resurrect the enterprises under their control. There are just as many examples of managements possessed of such resources making a relatively better showing only because they could employ some capital to advantage even though the over-all of their planning was faulty in the extreme.

The general problem of management appraisal, therefore, resolves itself first into appraisal of the personalities involved and then of deciding in each separate case the standards of measurement to be applied. The various phases through which the managerial form of General Motors Corporation has passed are a case in point.

In order to clear the ground of needless argument, let

it be conceded that the gigantic size of General Motors is socially beneficial and is the natural product of the economic processes of our time. The question then remains: What enabled General Motors to attain this size while others in the industry did not? The answer lies in the spirit of an epoch and in a single name: W. C. Durant.

It was his creative genius which, in the days of the great consolidations, carried through the consolidation after consolidation out of which General Motors was born. His imperial grasp of the potential extensiveness of this industrial empire culminated in the final merger of mergers, that of General Motors with United Motors. But there his constructive history ended.

His financial daring, his breadth of vision, and his courage to follow through with astonishingly ambitious plans were indispensable to the erection of the company. Judged relatively to that standard, the operation was magnificently conducted even though overextension caused him to lose financial control on at least one occasion and forced him to call in the aid of outside financial interests. That act ultimately cost him his power within General Motors. But, and it is here that the scale of relatives is shifted, it need not have done so had Durant's qualities been different from what they actually were. This, however, simply begs the question. For had Durant been the sort of man capable of even visualizing the nature of the management problem in so vast an emprise as General Motors, he would not have been the sort of man who could have put the organization together in the first place.

Through the instrumentality of John J. Raskob, the du Ponts were introduced into the General Motors Corpo-

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ration. They financed Durant in his fight to regain control. That fight was won. Yet this did not solve but merely initiated the major problem in management. For General Motors under Durant's leadership was a single enterprise only in name and in the nature of its financial structure. In all other regards, the company was still conducted largely as though no merger had been consummated. Granted that the car divisions utilized the parts and accessories manufactured by the divisions which produced them, there was little synchronization between these separate operations. Cars were produced not in accordance with estimates as to market, but almost indiscriminately. Their production schedules were whatever the plant capacity happened to be, not a predetermined ratio to a calculated demand. It was obviously impossible under those circumstances to state in advance what amount of any particular accessory would be needed by the various car models and to plan their production accordingly.

There was not even a serious effort to plan car designs in all divisions in such a way as to enable the producers of parts and accessories to produce for all divisions simultaneously. Even the separate models of cars were produced to compete with each other, no serious appraisal of market potential being made in any separate case nor any real attempt to allocate production according to greatest profitability or to largest possible markets.

That state of affairs might have persisted indefinitely had the depression of 1920-1921 not forced recognition of the dangerous lack of controls. In 1920, Pierre du Pont became alarmed at the disproportions developing within the economy. Prices, he reasoned, were obviously unstable,

the implication being that a serious price break was in the offing. Under those circumstances he became not a little concerned over the inventory position of General Motors. To minimize inventory risks, he caused the creation of an inventory allotment committee whose task it was to distribute among the various departments \$150,000,000 of assets theoretically allocated for inventory purposes. At du Pont's insistence, this committee informed all divisions that the scheduled production program could be completed with inventories not in excess of this amount. Explicit instructions were given to contain inventories within the allotted limit.

Despite the categorical nature of these instructions, certain department heads exercised their independent judgment, disregarded the injunctions which they had received, and proceeded to build up their inventories by \$40,000,000 between May and October of 1920. Inventories for the company as a whole were increased to \$60,000,000 above the \$150,000,000 laid down by the inventory allotment committee. When the subsequent break in prices anticipated by du Pont materialized, General Motors took losses of \$85,000,000 on its inventories and operations, \$64,000,000 of them occurring in the delinquent divisions which had disregarded the warnings of the financial executives.

This disaster spelled the end of the Durant regime. A management system capable of so appalling a blunder could hardly be permitted to persist. But when that blunder had been at the same time a piece of gross insubordination, there was obvious need for more basic changes to be made than merely in personnel. As a matter of fact, the ratio of sales to inventories and of cash assets to scheduled

operations in both the immediately preceding and the immediately succeeding periods proved conclusively that although some loss would inevitably have been incurred during the deflation, that loss could have been contained within safe limits had there been some way to ensure that the clear instructions of the finance committee would be carried out faithfully.

Failure to carry out those instructions was not merely the result of a difference in business judgment between the financial chairman and the department heads. It was an expression of the fact that no way existed, in the then chaotic state of General Motors, for instructions from the top to be followed through in all the lower levels of the organization. The chairman of the finance committee might issue orders. He could not enforce their implementation. There was an obvious lack of coordination between the various departments of the giant corporation, a coordination made all the more necessary by the decentralized organic structure which already characterized it.

To eliminate this, or at least to minimize the possibility of the recurrence of the problem in so aggravated a form, central control was then instituted of both inventories and purchasing, so systematized that the executive committee could check each month upon the extent to which current inventories and the flow of purchases formed, along with future commitments, a balanced component of the overall financial strategy laid down by the executive committee of the board of directors. Therapeutic as was this innovation, it was still a makeshift intended to mitigate the worst evils of an essentially faulty managerial concept whose defects mirrored the manner in which the corporation had

been put together. For General Motors had not grown in accordance with any fixed plan, unless one can describe as plan the daring, haphazard feats of consolidation and merger which Durant, lured on by the vision of a giant industrial empire, had accomplished.

Under du Pont leadership, General Motors built up the influence of the board and especially of its executive and finance committees. W. C. Durant was replaced as President, first with Pierre du Pont and later with Alfred P. Sloan Jr., both of whom devoted their thoughts and efforts not only to selecting the type of men best able to assist them but also to creating a coordinated system of management within which these men could work.

The emphasis was upon system, upon the structural aspects of management, upon methods of integrating those activities common to all divisions and upon decentralization where specialized and almost independent direction might prove most fruitful. As this conception of management emerged, a revolutionary conception in its day and one whose implications for our evolving society have not as yet been fully grasped, General Motors' famous but often misunderstood committee system took form. Implicit in this special form of control through committees was recognition that the corporation rests upon the assumption of perpetual existence, no individual within it being indispensable to its success or, if indispensable, constituting thereby a serious source of weakness.

This latter point has its paradoxical aspects. As Alfred P. Sloan's success in reorganizing General Motors, a task of years, became more apparent, his power within the company increased but the need for him to exercise it grew

less. As his power grew undisputed, it likewise tended to become more residuary than actual.

What he sought to attain—and did attain—was a smoothly functioning organization which would not require top executives constantly to supervise detail but which would be conscious at all times of the presence in the background of those executives and of the fact that a periodic accounting would be required of the degree of completion of allotted tasks.

This, of course, does not begin to describe the forms actually adopted within General Motors but it does express one of the main causes of General Motors' subsequent success. For although the basic structure of a decentralized organization was preserved, it was modified sufficiently to permit strategical direction from the center. General Motors' now famous "line and staff system," with staff decisions made at staff levels and with lines through which delegation of responsibility for the various facets of staff policy are clearly and definably traceable throughout the lower levels of the organization, is an expression of true exercise of command. For Sloan, within General Motors, created the counterpart of a rationally organized political society at each of whose functional levels the nature and the extent of responsibility tended to be in inverse proportion to the breadth of the base.

For the moment it is enough to comment that General Motors has passed through three distinct phases, in each of which a quite separate standard of judgment has been required in order that the quality of the management might be gauged with accuracy.

The first, as we have commented, was the phase of con-

solidation during which the ideal leader was the daring visionary who imbued his associates with views and a spirit comparable to his own. The second was the phase of transition, during which the main tasks were to preserve the capital invested in the company and to lay the groundwork for eventual evolution to a higher structural form. The third, and perhaps final stage as far as structure goes, was that of remolding the organization, reaching towards a sense of inner purpose, and coordinating all branches not merely operatively and functionally but in such a way that the official form of organization harmonized with the basic character of the vast enterprise.

To apply identical standards of judgment to such qualitatively different situations would be absurd. Yet it is the same company, not three different companies, which we are here appraising. If, then, the same company requires different measuring rods at different stages in its career, how much more necessary it is to define the precise nature of each separate company and of its problems before beginning to evolve the mode of judgment applicable to it, or the judgment itself.

Because of this, there can be no hard-and-fast rules underlying the measurement of corporation management. Standards applicable to one company would produce a gross distortion in judgment if applied to all companies equally or even to the same company at different periods in its evolution. In the same way, the form of control and the nature of the relationship between the various levels of the management group which prove efficacious in one case need not be able to be duplicated in the case of any other company. The human and personal element is not simply

a feature of the form of control adopted, it is a determinative feature of that form. Consequently, when we are examining the structural form of a corporation, its flow of authority from department to department, or its detailed operations, we must reflect upon the circumstances which led to their growth, upon the problems whose solution they represent, and upon the personalities out of whose thinking they have been conceived. That, in essence, is the nature of our task.

II

Measuring the Value of the Board

IN LAW, responsibility for the guidance of our corporations resides mainly in the board of directors. In fact, this is not so. Boards in general exercise less guidance than the law presumes. The average director, indeed, is growing too old to be able to perform his functions properly even if modern corporate organization called upon him to do so.

What are the facts? The following data cover seventy-five major companies whose joint capitalization amounted to \$22,339,000,000 and whose working capital totaled \$8,372,000,000, as of June 30, 1947. These seventy-five companies have 912 directors, of whom 780 have provided information as to their age, which is:

<i>Age Group</i>	<i>Number of Directors</i>
80 and over	20
75-79	49
70-74	82
65-69	124
60-64	169
55-59	149
50-54	90
45-49	62
40-44	26
Under 40	9
	<hr/>
	780

In ten-year categories, the age groups are as follows:

<i>Age Groups</i>	<i>Number of Directors</i>	<i>Percentage</i>
70 and over	151	19.35
60-69	293	37.5
50-59	239	30.3
40-49	88	11.25
39 or younger	9	1.5

Fifty-seven per cent of these directors are over the age of sixty. More than 35 per cent are sixty-five years of age and over. Almost 20 per cent are over seventy. Approximately 9 per cent are over seventy-five. One director is actually ninety-three years of age.

Only 12 per cent of the directors of these leading corporations are under the age of fifty; almost 20 per cent of them over the age of seventy. Something akin to dry rot has set in in these managements.

The social and economic implications of this are enormous. These older men in many cases occupy their board seats purely as a recognition for past services. During the recent war it was difficult to replace them with younger representatives. Now that the war is over this excuse has vanished but there is no evidence of any tendency towards youth. Younger men are entering the active managements of our businesses but are not generally being invited to join their boards of directors. If this trend should continue, if the spread in age between officers and directors should grow even wider, then, at some point in the future, the board of directors will disappear entirely as an institution. Or, if it does not, a gross disparity in outlook will develop between those who run the daily affairs of our

companies and those who have the legal power to hire and fire them.

With only 43 per cent of these board members under the age of sixty, it is inevitable that the social outlook of the boards reflect the cultural lag which traditionally adheres to age. In practical terms this means that the point of view of the board on labor relations policies, public relations, wages, production methods, location of plant, and all the other factors which go to determining whether or not a company is keeping in tune with the times, is growing antiquated. This is in marked contrast to the fundamental change in outlook which many executives have displayed in recent years. It may be asked why this should matter if control of the average corporation is firmly in the hands of professional administrators. It matters considerably, for the legal responsibility of the board to oversee each general operation is a very plain fact. At some point in the future that legal responsibility may collide violently with the plainly growing incapacity.

In recent years, employer-employee relations have assumed a semblance of complexity. The term semblance is used advisedly since the issue has not fundamentally changed at all other than in certain technical and legal aspects. What has occurred is that as boards have grown older they have tended to leave these matters to the attention of full-time executives who, having many other duties to attend to, have themselves created subordinate specialists to advise them on these problems. In our opinion, this is the principal reason for the growth of the professional labor relations director and for the demarcation of his function from others similarly specialized. In some respects

this tendency is a healthy one. But to the extent that it reflects not a scientific approach to a troublesome question but mere inability on the part of boards to advise on such commonplace yet continuing matters, it must be regarded as basically undesirable.

Younger boards would tend to maintain a closer watch over the intimate details of company policy without necessarily intruding themselves into the actual operations. In general, the greater the average age of the members of a board, the more likely that board is to find itself out of sympathy with the new methods and new basic concepts introduced by younger men. Consequently, given an actively interested board and a tension arising from differences in age between directors and officers, the older the members of the board the greater the likelihood of their committing the basic business sin of interfering in matters which they do not fully grasp and which lie outside their operative province.

The increase of the average age of board members is both a cause and a symptom of the growing professionalization of operating management. Because directors are growing older and because their interests are many, they lack the time and the detailed knowledge necessary to wise guidance of the affairs of our corporations. It is for this reason that an increasing number of board members grows to feel that the sole main duty of the board is to select a good chief executive, and having once selected him, to give him full backing. No doubt this is a major function of the board, but even to imagine it to be its sole major function is a dangerous trend of thought. For chief executives, once appointed, are not easily removed from office. One can give

them an average operating life span of from ten to fifteen years. Must we then assume that the board has no important function to perform except at ten- or fifteen-year intervals? If so, the time really has come for a revision of the concept of fiduciary responsibility.

The opinion is growing in many quarters that the board, as an institution, has outlived its usefulness. Its replacement by some new type of quasi-private, quasi-public advisory body is advocated not only by malcontents. The advancing age of board members and the demonstrable lack of interest displayed by many of them are leading to a demand for representation of both government and labor on a new form of board and for direct representation of minority stockholder groups through some proportional system of election. This is not the place to pass judgment upon the merits of such proposals. Not without significance, however, is the fact that such ideas have grown along with the realization that today's boards do not exercise the same directive functions as did those of two generations ago.

Capable men grow increasingly reluctant to serve on boards. This is in part cause and in part effect of the advancing age of board members. Elderly and crusty directors are not the most companionable of business associates. The sense that an invitation extended to some vigorous person to join a company's board will leave him almost without a voice in the conduct of the company's affairs does not lead constructive minds to aspire towards the empty honor of nominal directorship. Vigorous minds want boards either completely subordinated to their think-

ing or consisting of men mentally agile enough to welcome constructive and perhaps deeply critical proposals.

This reluctance of good men to join boards has even deeper roots. Men with wide business experience are well aware that the directors of a corporation have substantial legal responsibilities. In addition, they have reputations to preserve and are not eager to expose themselves to criticism in the absence of material rewards and of evidence that their services are fully appreciated. With the onset of the Great Depression, hundreds of directors resigned their directorships because they felt that the situation was already beyond control. It is easy enough at this point in time to condemn them for deserting the post of duty. In reality, it was not desertion. It was, rather, a form of recognition that the accustomed ways of doing business had proved faulty and that until better business safeguards were devised, these men, in fairness to themselves and to their more direct business interests, must absolve themselves from further responsibility.

There is, in today's business atmosphere, a growing sense that a substantial recession in business is not beyond question. When it will come—if it comes at all—its possible depth, and its possible duration, are questions agitating the minds of all men in the business world. In such an atmosphere, with more than a little suspicion that the business structure is far less solid than it appears, no great inducement has been devised to secure new men to replace retiring directors. If the man of wide business experience really suspects that a downswing in the trade cycle is imminent, his main concern, naturally, is to put the affairs of his own company in order first, to place himself in a liquid

position, and to refuse to extend the scope of his activities. This deters the most competent of our businessmen from accepting and certainly from seeking the added responsibilities of more directorships.

The corporation in which the disparity in age between directors and officers is unusually wide is likely to be one in which political disagreements are frequent. These disagreements need not be over fundamentals but the board, if unusually aged, is likely to interpret them as such. The habits of one generation, the ordinary and accepted political beliefs of its time, the things it believes to be unchanging cornerstones of the political and economic structure, are not so regarded by younger people. The attention of older people is riveted too frequently to outworn political slogans, relevant only to the period in which they were devised. Younger men are busy creating their own sets of clichés.

Even over business concepts the same holds true. Issues over which an older generation of executives would never have given way have, to younger men, become accepted as the environment in which they must operate.

Consequently, the disparity in age between board and officers must be narrowed if true operating harmony is to be achieved. Since the average officer is considerably younger than the average director, it follows that the average age of board members must be reduced.

If ten per cent or thereabouts of the members of a board are over the age of sixty, it might even be a matter for applause. It could mean that some of the acquired wisdom and experience of an earlier generation is being transmitted to the management of a company run by

younger men. But if over twenty per cent of the board members are over the age of sixty, then the cultural lag between officers and board is already too great for true unanimity of purpose to be possible.

There is no optimum age for board members. Even if there were, too many modifications would have to be introduced to prevent the rule from being universally applicable. Nevertheless, the board which tends toward a preponderance of younger men is, all other things being equal, preferable to one whose average age is well advanced. In making comparison between two substantially similar companies, we would show a distinct preference for that whose board members tend towards early middle age over that whose members have actually passed their retirement years. This, of course, brings up the question as to whether or not there should be a compulsory retirement age for directors. Many responsible businessmen have proposed that all directors should be compelled to retire at the age of sixty-five, a view to which we do not subscribe.

It is estimated that 6000 new directors took their seats in 1947 despite the fact that 35 per cent of the directors, according to our sampling, continued to be sixty-five years of age or over. There are in the United States more than 60,000 company directors. If retirement were to be demanded of 35 per cent of them, the immediate need would be created for 21,000 new directors, plus normal replacements, making a total of 27,000 directors suddenly to be replaced. Men acquainted with the world of business know it to be impossible to find overnight 27,000 new directors of satisfactory business experience, financial standing, and social and economic connections. There

simply does not exist so large a body of men not presently serving as directors but fully capable of doing so. The result, if retirement at sixty-five were to be insisted upon, would be to increase the number of boards on which the better equipped directors would have to sit, reducing the time each director could devote to his directoral duties unless he were to relinquish his other business obligations.

The National Industrial Conference Board in 1946 published the results of a survey on the compensation and duties of corporation directors. We quote from that study.

Men prominent in public life have advocated the idea of well paid directors such as there are in Great Britain. In 1939, however, 85 percent of the business executives, replying to the Board's query, objected to the use of so-called "professional" directors. In the present survey, the question was rephrased to omit the term "professional," which carries an unfortunate connotation in the minds of many businessmen. This time the reactions were more favorable. The idea of "well paid directors serving on boards of several non-competing organizations holding no executive positions, and representing no particular group" was approved by slightly more than half of the companies who expressed an opinion on this matter.

Our own surveys have shown a not dissimilar opinion on the part of business executives. Professional management does not appear to object on principle to a more professional directorate but, as the Conference Board also discovered, is deterred by the term "professional director."

Although the tendency is undoubtedly towards increased professionalization of corporate management, realization seems to be growing on the part of professional

executives that they need the active assistance of smaller but more competent boards.

In a number of cases our queries elicited replies which indicated that some executives were confused over the difference between inside boards and well-paid directors devoting all or a major part of their time to the affairs of their company. In not a single instance did a reply spontaneously assert that there was evident need for greater expression of the fiduciary responsibility of the board. In essence, the emphasis throughout was upon the practical aspect of the matter, the proposed "professional" director apparently being regarded somewhat as an ex-officio vice-president.

English experience with professional directors has not been too happy. The tendency in some cases has been to sell the prestige of a family name in return for a sinecure or to use the professional directorate as a means for pensioning off ineffective and non-earning members of a business family. This has happened sufficiently often for any parallel with English experience to be valueless for American purposes. It is not impossible, should the salaried director be introduced as a common feature of American business control, that some such instances would occur in this country. On the other hand, the process of selection of a well-paid director would tend to be similar to that employed in selecting executive officers. The striking power of a board selected in that way could be considerable.

It is an axiom of management appraisal that an underpaid director cannot be expected to devote sufficient time and interest to his work to be an effective factor in the

formation of company policy. If he is effective despite inadequate remuneration, it is usually because he has a substantial interest through direct stock ownership, represents a group having such an interest, or is part of an outside organization having intimate business connections with the firm on whose board he sits. In all these instances his motivation is fundamentally similar to what it would be had he been selected in the first place solely because of his directoral capacities and had been adequately and directly compensated for his time and effort.

We tend therefore to weigh quite heavily the question of whether or not the average member of an individual board has sufficient financial interest in the company to warrant exercising his best judgment and putting forth his best efforts. Those companies which are moving toward the well-paid directorate are displaying a firmer grasp of the board's problem than those which are not. We would rate them higher in our management scale.

Minority Interests and the Board

Of every officer and director of any corporation, one must ask, "What stake has this man in the company?" We would ask this more particularly of directors than of subordinate officials. There is a danger that in asking this question we shall simply be duplicating what we have already queried when analyzing the corporate structure. Nevertheless, who the board is, what financial or business groups its members represent, and the consequent probable bias of their thinking are basic to appraisal.

On far too many boards there are directors who make no pretense at being concerned with the general welfare of

the corporation which they are supposed to assist in directing. They are, frankly, representatives of special outside interests and sit on the boards only because they have axes to grind. This takes many forms. The complaint is frequently heard that information regarding the internal affairs of one corporation is quickly transmitted to main suppliers or to customers although the information is supposedly confidential. It takes little imagination to see that this can have an immediate effect in determining the pricing policies of suppliers and the purchasing policies of customers.

It is not unknown, in fact, for the most intimate details discussed at the board meetings of one company to be fully revealed to an important competitor. We do not know how often this happens, nor do we suggest that it is a common practice. Perhaps the many instances which have been quoted to us have more of rumor than of truth about them. But it is known to happen on occasion. The fact that it can happen at all is sufficient reason for us to question seriously, in appraising any organization, what financial and business connections each board member has or has had in the past.

Even where there is no such outright dishonesty, board members frequently find themselves so placed that they are unable to act wholly dispassionately. For example, the head of a steel company serving on the board of a railroad may be asked to assist in pressing for higher freight rates. If he does use his influence toward this end, it may be contrary to the well-being of the steel company of which he is president. If he does not, he may possibly be sacrificing the welfare of the railroad to the very special in-

terests of the steel producer. This sort of situation is not uncommon. It is bound to arise sooner or later in the average outside board. One wonders, at times, whether any representative of a major customer of a utility ought, ethically, to sit at any time upon its board.

However, if we start to make rigid rules over issues such as this, we shall find that we are working towards breaking down the economy into rigidly separated compartments which in no way reflect the cross interests and mutual interchanges of experience which constitute the world of business. One supposes that awareness of the possibility of this problem arising is, in the average corporation, sufficient bulwark against it becoming an operative fact. But it must be in the very forefront of the board's thinking, not something to be regarded as a mere possibility.

Since this is the age of diffused stock ownership and since the corporate structure has been molded and remolded in recognition of that fact, continued domination of the board by members of a founding family now become mere minority holders is, in principle, an unhealthy anachronism. This does not at all mean that some of the finest business brains in the land are not still to be found among the descendants of the founding families nor does it suggest that their continued control of companies bearing their names need prove unprofitable or irresponsible. The odds, however, are against it. With certain notable exceptions, and those so recent as not to have stood the test of time, control by family groups tends to perpetuate the nonprofessional directorate and to make even wider the cleavage between the professional executive and the amateur member of the board.

It tends, likewise, towards retaining on the board men long past their prime, no longer actively engaged in business, and occupying the euphemistic status of "agriculturist." To use a colloquialism, such boards are "run by farmers." Such boards do not lend themselves readily to suggestions for basic change. Nor are they likely to place the interest of the small stockholders, who collectively constitute the overwhelming majority of the owners of a corporation, above their own. Implicit in family control of the joint-stock company is the possibility of a serious conflict of interest between the ruling group and the mass of stockholders. On such matters as dividends, there is a tendency for large stockholding groups which dominate the board to maintain a low rate of dividends during a period of high personal income taxes. The interests of a family group may lie in preserving capital, not in generating income to be taxed away. The blame may rest fundamentally upon the taxing system but there seems little reason to hope for truly substantial reductions in the tax rate in our time. Therefore, the need for higher dividends grows greater so far as concerns the small stockholder while the large stockholder groups find large disbursements of no benefit whatever.

Should we then avoid investment in companies whose boards, and therefore whose dividend policies, are dominated by family interests? Not in the least. But before regarding such situations with favor, there must be clear evidence that other factors outweigh family interest so overwhelmingly that the minority family control has ceased to be a defect. There are numerous such cases, the du Pont Company and United States Rubber being paramount

examples. However, it is not because control is exercised by an individual family that investment in such situations is desirable, but despite it. Domination of the board by minority financial interests, especially if that interest represents the heirs of the founders, must be viewed with caution; almost, indeed, with suspicion.

III

The Inside Board Versus the Outside Board

THE most disputed question regarding the board of directors is "The Inside Board, is it preferable to the Outside Board?" Let us define our terms.

An inside board is one of which each member is an officer or employee of the company; an outside board has a number, perhaps a majority, of nonemployee members who, at least in theory, represent the stockholders or affiliated interests.

The inside board, as a matter of fact, is an anomaly. It is not a board of directors in the original sense of the term, nor does it pretend to act as fiduciary agent of the stockholders in any way that the executive officers do not already act. It is a board from which stockholders are excluded unless they happen to be officials, in which case their board membership derives not from their partial ownership of the company but from their employment status within it.

The outside board, however, is likewise an anomaly. It does not consist of nonemployees who meet together to reach decisions which the employees must implement. Instead, it consists of two distinct groups: The employee-

directors who serve as "inside" directors and the nonemployee-directors who serve along with them. The latter members are necessarily less well versed in the conduct of the business than are the employee-directors. Consequently, the extent to which the average director grasps a company's problems is usually slighter on the outside board than on the inside board. The latter consists of men with no other business concern than this.

It might be better if the terms "inside" and "outside" boards were to be dropped altogether and their place taken by the expression "full-time" directors and "mixed" directorates. More clarity might be achieved thereby. But the real problem would go unsolved because, although inside boards are relatively few in number among the larger corporations, the companies characterized by them are for the most part excellently managed. It shall be our thesis that such excellent management is merely incidental to, and not a consequence of, the inside boards by which these companies operate.

Standard (N. J.), Humble Oil & Refining, Ohio Oil and Socony-Vacuum, all, except Humble, once part of the defunct Standard Oil trust, operate with inside boards. American Tobacco Company, Liggett & Myers Tobacco Company, and Reynolds Tobacco Company, all of which emerged from the old American Tobacco Company, itself dissolved under antitrust proceedings, operate with inside boards. If it be mere coincidence that each of these companies has a similar background of trustification, it is a most curious coincidence indeed.

Yet the extent to which the original management con-

ception still prevails in these corporations is a matter for the purest conjecture. One simply does not know, and cannot know, whether the sort of mind which created the trust has left behind it a legacy of centralization of corporate power. However this may be—and no doubt there is some element of truth in it—it would be false to say that the inside board is merely an historical consequence of early trustification. As conceived today, the inside board is an expression of the efficiency problem. Whether it achieves greater efficiency is the real issue.

To raise this issue concretely, let us compare two leading companies in the same industry, the one with an inside board and the other with a board on which “outsiders” are represented. The best possible comparison for our purpose is between the Standard Oil Co. (New Jersey) and The Texas Company in early 1948.

<i>Directors</i>		<i>Standard Oil Company (New Jersey)</i>
<i>Name</i>	<i>Age</i>	<i>Other Directorates</i>
F. W. Abrams	59	None
F. H. Bedford, Jr.		Atlas Supply Co., Pres. Victualic Co. of America
S. P. Coleman		Aramco
J. E. Crane	56	None
Orville Harden	53	Aramco
R. T. Haslam	59	Ethyl Corporation
E. Holman	53	None
B. B. Howard	58	None
F. W. Pierce	54	None
C. F. Smith		None
J. R. Suman	57	Aramco

Jersey Standard's board seems deceptively simple. Mr. F. H. Bedford, Jr., sat on the board of Victualic Company of America and served as President of the Atlas Supply Com-

pany which, 20 per cent owned by Jersey (through Stanco) and 80 per cent owned by other oil companies, distributes tires, batteries, and accessories to the operating affiliates of all its stockholders, including Jersey, which in turn distribute them through those service stations, usually owned by private operators, which handle the products of these companies.

Messrs. Haslam and Bedford sat on the board of Ethyl Corporation. Messrs. Coleman, Harden, and Suman were directors of Aramco (The Arabian American Oil Company jointly owned by Jersey, The Texas Company, Standard Oil Company of California and Socony-Vacuum). Mr. Pierce until recently sat on the board of Imperial Oil Limited, 70 per cent of whose stock is owned by Standard Oil (New Jersey). To all intents and purposes, therefore, no director of Jersey sat on the board of any company not directly affiliated with the parent organization. Such, indeed, is firm company policy, it having been decided some years ago that the Rockefeller form of inside board precludes cross directorates with nonaffiliates.

Standard Oil (New Jersey) is primarily a holding company. Because of this, and because John D. Rockefeller, Sr., insisted throughout his active business life upon firm personal control of the enterprise he had built, the inside board was a logical enough development even had there not been a prime emphasis upon efficiency.

The professional full-time board members in this case represent an intermediary step in functional relation between the operating executives of the subsidiaries and affiliates and the chief executive of the giant holding company. It is only indirectly that they represent the trustee-

ship function of which one hears so much from badly informed students of the corporate structure. They represent this function through acting as general overseers to each of whom is allotted a specific field of activity and a sphere of critical observation over what can be best described—even though the description is a loose one—as the investments made by Jersey on behalf of its own stockholders.

Jersey, in fact, is directed and controlled by its executive committee which, other than in the formal legal sense, exercises all the functions of the individual officers and of the board of directors. The officers and the board members, who in this case are one and the same persons, meet with unusual frequency as an executive committee, reach their decisions collectively, and, separately, consult with the decentralized corporate affiliates on company-wide policy. This mode of operation is unlike anything else in any other leading company in the United States. It defies definition by ordinary business terms or, to put it more aptly, has outgrown the accepted definitions of officer, director, and board.

To the extent that the directors engage in protecting the investments made by Jersey in its affiliates and subsidiaries, they also protect, one step removed, the investment made by stockholders in Jersey itself. In this case, happily, fact and theory coincide to the extent that the investment security of the Jersey company's stockholders depends entirely upon the skill, efficiency, and integrity with which the officers and directors of Jersey themselves guard and guide Jersey's own investments.

This is simply another way of saying that in Standard

Oil (New Jersey) as in any other company, fiduciary responsibility is manifested finally in the honest and able conduct of the enterprise and not in a body of solemn platitudes—a fact upon which many men might reflect for their peace of mind.

Smaller companies whose ramifications are less complex and whose corporate structure reflects a less indirectly exercised productive function, frequently not only do not have but perhaps might not even be able to operate with an inside board, although this is a point upon which one can be by no means decisive. All other considerations notwithstanding, the one indisputable fact is that Standard Oil Company (New Jersey) was a Rockefeller Company and continues to bear the marks left by its founder. As the twig was bent so it has grown. Standard (N. J.) was bent in the direction of continued and unashamed control by insiders, a not unhappy fact as this company's successes have demonstrated.

It must be insisted that the inside board of Standard (N. J.) is not a necessary and inevitable product of its ramifications, its volume of sales, the nature of its business, or the innate difficulties of its operations. These are the reasons usually offered by observers of Standard (N. J.) for the inside form of its control. For this line of reasoning to hold true, however, it must follow that all corporations, once they have reached the size of giant, must adopt a closely similar board to that which characterizes Standard Oil of New Jersey.

In other words, to explain Jersey Standard's form of inside board by the peculiar complexity of its operations is to claim that this form of board is less a product of human

reasoning as to what is necessary for efficient control than of the simple, unreasoning forces of social and economic evolution themselves.

Let this point be underscored. If it be true that the inside board is a necessary product of the ramifications, volume of sales, nature of business, and international extensiveness of Standard (N. J.), it follows logically that companies of broadly similar type must adopt the inside board if they are to succeed in harmonizing the direction of their development with that of the society in which they operate. But if, instead, the inside board is the product of the reasoning of men whose emphasis upon efficiency gives a different weighting to certain aspects of corporate control than does the thinking of other men in other companies equally concerned with efficiency, then the inside board becomes the product not of blind economic pressure but of the subjective reasoning of a small group of individuals.

The author is by no means convinced either that the problem can be stated as flatly as this or that in each separate case, even within the same industry, the factors both of social evolution and of the subjective influences of the unique organizational genius of individual men may not combine to produce either form of board. The chance development of an unusual foresight acting upon essentially transitory sets of circumstances may have been the creative forces behind the inside board. It is quite certain that, in the case of Jersey Standard, although the original form of control has undergone many mutations, some the products of deliberate thought and some the simple product of external pressures, the basic concept as to relationship of board to executives and of board to stock-

holders remains unchanged in substance. The evolutionary theory must be strained somewhat to make it fit these conditions.

The Texas Company's Outside Board

The argument that an inside board is necessary for efficient management of a vast holding company, especially in the oil industry, cannot withstand examination. The Texas Company, for example, is ably directed by an outside board although its holdings are just as widespread geographically as those of Standard Oil Company (New Jersey).

<i>Directors</i>		<i>The Texas Company</i>
<i>Name</i>	<i>Age</i>	<i>Other Directorates</i>
G. N. Aldredge	64	First National Bank, Dallas, Chairman of executive committee Southwestern Life Ins. Co. Standard Brands, Inc.
W. J. Cummings	68	Continental Illinois Nat'l Bank & Trust Co., Chairman American Car & Foundry Co. Commonwealth Edison Co. Maryland Casualty Co. Chicago, Milwaukee, St. Paul & Pacific R. R., Chairman of finance committee Federal Reserve Bank of Chicago Western Union Telegraph Co.
W. S. Gray, Jr.	50	Central Hanover Bank & Trust Co., Pres. and Trustee American Eagle Fire Ins. Co. Fidelity-Phenix Fire Ins. Co. General Foods Corp. Wm. S. Gray Co., Pres. National Surety Corp.

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<i>Name</i>	<i>Age</i>	<i>Other Directorates</i>
		North British & Mercantile Ins. Co. Northern Insurance Co. Phelps Dodge Corp. Union Carbide & Carbon Corp. New York Clearing House Assn. Assurance Company of America National Surety Marine Corp.
M. Halpern	56	Texaco Development Corp. Neches Butane Products Co. Ultramar Petroleum Co. Jefferson Chemical Co. Carthage Hydrocol Inc.
H. U. Harris	48	Harris, Upham Co., Partner N. Y. Stock Exchange, Member & recently Governor American Steel Foundries Chemical Bank & Trust Co.
H. T. Klein	63	Coltexo Corp. Seaboard Oil Co. McCull-Fontenac Oil Co., Ltd. Arabian-American Oil Co. Trans-Arabian Pipe Line Co. Jefferson Chemical Co., Inc. Texaco Development Corp. Carthage Hydrocol Inc. The Union Nat'l Bank of Pittsburgh, Pa., Pres.
J. H. Lapham	63	Frost National Bank, San Antonio, Tex.
J. S. Leach	57	National Bank of Commerce, Houston, Tex.
C. L. McCune		
W. H. Mitchell	52	Mitchell Hutchins & Co., Partner Continental Illinois Nat'l Bank & Trust Company, a Director

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<i>Name</i>	<i>Age</i>	<i>Other Directorates</i>
L. J. Norris	47	State Bank of St. Charles, Ill., Chairman
R. Ogarrio	60	Coltexo Corp. Seaboard Oil Co. of Del. Colombian Petroleum Co. Colsag Corp. South American Gulf Oil Co. Tolima Land Co. Texaco Development Corp. Mexican Chamber of Commerce of the United States La Junta Petroleum Co. Texas Petroleum Co. Texaco Exploration Co.
C. E. Olmsted	58	Arabian-American Oil Co. Colombian Petroleum Co. South American Gulf Oil Co., Pres. & Director Texaco Development Corp. Texas Petroleum Co., Pres. & Director Tolima Land Co., Pres. & Director La Junta, Pres. & Director Trans-Arabian Pipe Line Co. Director & Vice-Pres. Colsag Corp. N.V. Nederlandsche Pacific Petroleum Maatschappij
W. S. S. Rodgers	63	Freeport Sulphur Co. Arabian-American Oil Co., Vice- Chairman of Board & Director Jefferson Chemical Co., Inc. Vice-Chairman Trans-Arabian Pipe Line Co., Chairman
R. L. Saunders	57	Texaco Development Corp. Texaco Exploration Co. McColl-Frontenac Oil Co., Ltd.

<i>Name</i>	<i>Age</i>	<i>Other Directorates</i>
R. C. Shields		Fisher & Co. Baldwin Locomotive Works Seaboard Oil Co. of Del. Midvale Co. Martin-Parry Corp., Vice-Pres. & Treasurer Peerless Cement Corp. Zonolite Co.

It is true that The Texas Company is smaller. It is likewise true that all the problems which beset Standard (N. Y.) have to be dealt with by the officers and the board of The Texas Company and are coped with quite successfully despite heavy representation of "outsiders" among the directors. A brief statistical comparison of the two companies offers no basis for the suggestion that if they were of equal size their central control systems need be identical or even similar.

The paramount fact which emerges from comparison of the statistical histories of these two companies is that while the operating revenues of Standard Oil rose by almost 225 per cent between the years 1934 and 1948, those of The Texas Company in 1948 were almost four times as great as in 1934. Readers with industrial experience will recognize, especially since we are dealing with sales in the hundreds of millions of dollars, that The Texas Company must have suffered severe growing pains throughout this period. These difficulties were superimposed upon the complexities and problems which beset even the more mature Standard Oil Company (New Jersey).

In 1948, the net income of Standard Oil Company (New Jersey) was eight times as large as in 1934. The Texas

THE TEXAS COMPANY

(Millions Omitted)

<i>Years</i>	<i>Sales</i>	<i>Net Income</i>	<i>Working Capital</i>	<i>Total Assets</i>
1948	\$1,080.89	\$165.98	\$357.16	\$1,277.10
1947	819.21	106.31	363.78	1,115.30
1946	586.54	71.09	231.03	916.40
1944	545.02	54.52	176.57	833.53
1942	412.37	35.06	174.62	719.53
1940	350.26	31.55	124.23	675.20
1938	348.92	23.14	113.78	605.36
1936	337.47	38.26	93.18	540.15
1934	272.62	5.55	119.37	474.84

STANDARD OIL COMPANY OF NEW JERSEY

(Millions Omitted)

<i>Years</i>	<i>Sales</i>	<i>Net Income</i>	<i>Working Capital</i>	<i>Total Assets</i>
1948	\$3,300.79	\$365.60	\$659.84	\$3,526.04
1947	2,354.92	268.63	690.07	2,995.99
1946	1,622.33	177.61	739.03	2,659.99
1944	1,638.71	155.40	697.08	2,490.31
1942	1,039.34	83.36	495.68	2,220.18
1940	821.68	123.89	485.85	2,071.54
1938	1,173.73	76.05	489.68	2,044.64
1936	1,162.12	97.77	432.34	1,841.85
1934	1,017.97	45.62	407.17	1,941.71

Company's 1948 earnings as reported to stockholders were thirty times as large as in 1934. The rate of growth of working capital and of total assets was considerably larger in the smaller company than in Standard (N. Y.). In other words, judged relatively to the magnitude of the problem facing the two management groups, The Texas Company with its outside board, even after due allowance for the smaller scale of its operation, made just as good a showing as did the larger organization conducted by an inside board.

Of The Texas Company's sixteen board members, seven

are company employees, including the president, chairman and five vice-presidents. These are the "inside" members of this mixed board to whose judgment the "outside" members usually defer. (None of these seven sit as board members on companies in which The Texas Company does not have a direct financial interest or a contractual relation.) The Texas Petroleum Company, Tolima Land Company, and Texaco Development Corporation, for example, are 100 per cent owned subsidiaries. Texas owns 50 per cent of The Bahrein Petroleum Company, Inc. and 30 per cent of Arabian American Oil Company.

Indirectly it controls 50 per cent of South American Gulf Oil Company, which operates a pipeline in Colombia and 49.91 per cent of Colombian Petroleum Company, sharing control of both companies with Socony-Vacuum. The Great Lakes Pipeline Company is owned by The Texas Company, Continental Oil Company, Mid-Continent Petroleum Corporation, Skelly Oil Company, Pure Oil Company, Phillips Petroleum Company, Cities Service Oil Company, and Sinclair Refining Company. Of Coltexo Corporation, producer of carbon black and natural gasoline, Texas Company owns 49 per cent, 51 per cent being owned by Columbian Carbon Company. Neches Butane Products Company, engaged in the production of a component of synthetic rubber, is owned jointly by Texas Company, Gulf Oil Corporation, Socony-Vacuum. Pure Oil Company and Atlantic Refining Company. Ultramar Petroleum Company, which refines and markets petroleum products in Argentina, is owned share for share with Socony-Vacuum. Of the 2,607,963 outstanding shares of

McCull Frontenac Oil Company Ltd., second largest oil company in Canada, Texas owns 54.6 per cent.

We thus have two facts to consider in Texas's outside board. The first is that its nonemployee directors are representative of all types of industrial corporations, railroads, public utilities, banks, and other financial institutions. The banks of which Mr. Cummings and Mr. Gray are executives hold as trustees a large number of shares of the capital stock of the company. Fisher & Company, of which Mr. Shields is an officer and director, owns a large number of shares of The Texas Company stock. In other words, there is strong stockholder representation plus the presence on the board of men of the most diverse and extensive business experience. The second point to observe is that board membership in The Texas Company is indirectly board membership in companies owned in conjunction with Socony-Vacuum, American Cyanamid, Columbian Carbon, Standard Oil of California, etc.

It must not be assumed however, that the "inside board" would be less capable of taking advantage of the exploratory and development works performed by other companies. The formal relationship of company to company which cross-directorates engender gives no readier access to knowledge of what is being done by others. It is not via the directors but via the operating executives that the main inter-company exchange of basic ideas is effected. Trade associations, professional periodicals, and simple human association are more efficient instruments for the dissemination of knowledge than are the boards of directors.

In what then lies the advantage of one form of board

over the other? If efficiency alone is what is sought, the inside board may well prove the more advisable. But a problem at once arises. In the central direction of a corporation, the nature of the policies adopted must mirror the type of men who rule upon them. Therefore, if the inside board is composed of men of superlative caliber, it is likely that their joint effort will produce superlative results. But if it be composed of mediocrities, the upshot can prove disastrous.

As regards research, for example, whether a company initiates an imaginative and perhaps costly program may depend in both kinds of board upon which director sponsors it and, if it is adopted, continues to foster it. The inside board, if its members are unusually attuned to the changing business environment, may adopt it and press it the more readily. But if they are not men of this type, it may prove impossible to sell the idea to the board. This is especially the case where the products are fairly uniform in nature and if research threatens to lead the company into seemingly remote fields.

On the other hand, it is seldom the outside directors on a mixed board who press for enlargement of a research program. Within the mixed board, the employee-directors, the "inside" members, are responsible for the initiation of policy. It is the function of the outside members to exercise a restraining hand upon them.

That reaches the heart of the problem. An inside board imposes no immediate restraints upon the planning of the executive group. The directors are, *ipso facto*, a policy committee of executive officers whose power to decide is limited only by the group attitude. The mixed, or outside

board, may exercise a negative influence upon the executive group whenever the outside members feel that the limits of ordinary business caution are being overstepped.

It may—and does—occur that outside representatives often induce an unwarranted degree of caution in business decisions. On the other hand, company after company has had good cause to be grateful for the broad grasp of business problems—especially as affects financing, expansion, mergers, and the general business outlook—which outside members have contributed.

The inside board consists of employee-directors without the addition of public representatives. The outside board consists of employee-directors who deliberately seek the aid of experienced members of the public. Only if the executive group is of unusual acumen and integrity can the inside board be applauded. Therefore, one must expect from such a board either exceptionally brilliant performance or woefully inadequate management. It suffers the disadvantage of being able to operate only at extremes. The “happy medium” is totally foreign to its nature.

Because of this, that management which operates via the “outside” board, is usually, and by far, the more to be desired.

IV

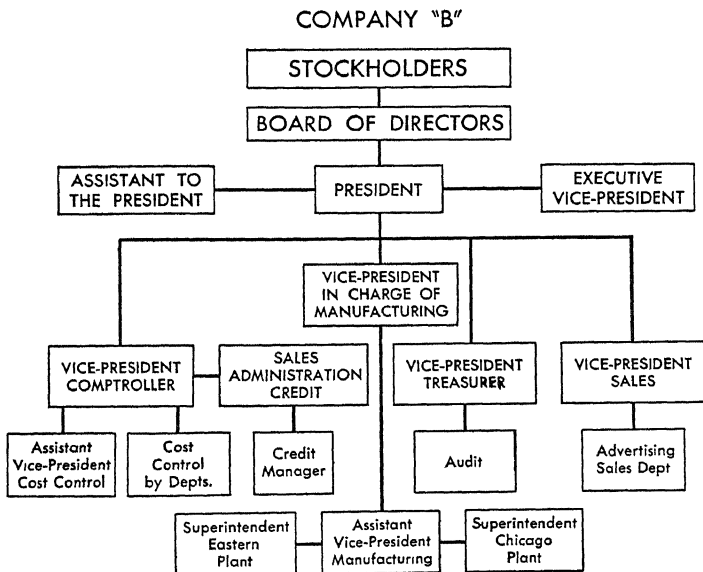
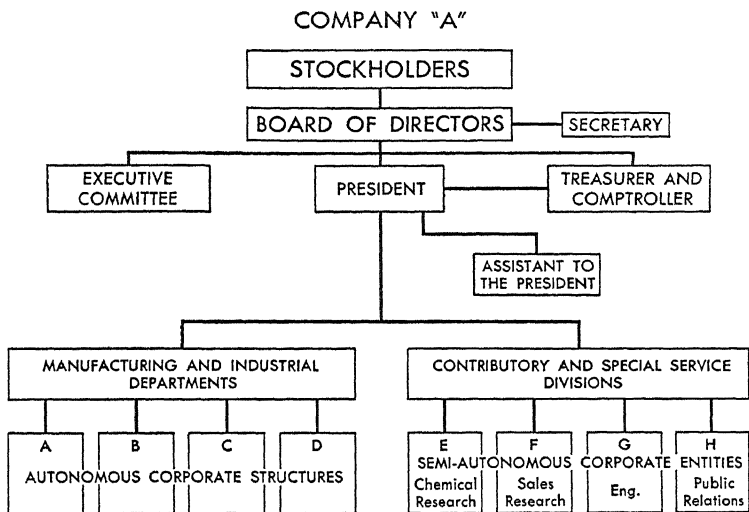
Analyzing the Corporate Structure

Where Does Authority Lie?

WE REPRODUCE the official organization charts of two major manufacturing concerns, not because they tell us anything significant about the internal operations of the companies but precisely because they do not, although they do show that the two businesses are run in quite different ways.

Company A operates on the basis of divisional autonomy while Company B is divided departmentally. Such facts may interest scholars concerned only with describing the corporate structure. To the analyst they convey little that is pertinent. The fact is that Company A operates on the basis of substantial divisional autonomy because a number of its plants and operations are geographically remote from each other and constitute virtually independent businesses. Company B is organized on a departmental basis with little autonomy among the departments because its plant is largely integrated and its products fairly uniform in character.

However, we require no chart to know that a wide



geographic dispersion of plants requires a different form of organization from that of a single unit or of several integrated ones. This does not indicate any superiority in form nor any better managerial concept underlying it. It states merely what every businessman already knows: that plants situated great distances apart and producing goods intended for different markets require, if embraced within one corporation, different handling from plants which lack these characteristics.

The most important questions concerning the two companies are the very ones these charts fail even to pose. For the fundamental question in business organization is: Who makes the decisions and how are they carried out?

If we were to accept these organization charts at their face value, we would have to accept as true something we know to be quite false. Both charts suggest that the decision-making starts with the stockholders, flows from thence to the board of directors, is there modified and transmitted to the chief executive whose task it is to translate it into action by issuing instructions to subordinate officers.

This, of course, is nonsense. In neither of these corporations do the ordinary stockholders have the slightest say in the day-to-day conduct of the enterprise. Only a minute fraction of them even attends the annual or special meetings. Formal approval of proposals legally requiring their assent is drummed up through a smoothly operating machinery for the gathering of proxies. Over the most important of those decisions about which the law does not insist upon their being consulted, they have no say at all. For

most purposes, their position of primacy in the organization chart is a legal fiction.

This powerlessness is common to all the stockholders of Company A but only to some of the stockholders of Company B. In the latter company, a banking group and the remnants of the original family interest jointly control about thirteen per cent of the common stock and through this minority holding dominate the corporation. Their influence extends through the board of directors into the operating management. The president, officially the chief executive of Company B, is an excellent administrator who knows his business thoroughly. However, on all important financial matters and whenever a question of basic policy arises, he consults with the dominant minority group before making his recommendations to the board. More often than not his suggestions are accepted by the dominant minority.

Agreement is reached informally. A telephone call, a casual chat, a meeting over lunch or dinner or at the club are the normal channels through which are thrashed out the ideas of the chief executive and of the minority groups whom he regards as his real employers.

This is a totally undemocratic procedure which perhaps circumvents the formal requirements of the law. Yet it is not intended to go outside the law or to be undemocratic. It is simply a reflection of the tendency of groups, once in a position of power, to perpetuate themselves either directly or indirectly. It is not necessarily objectionable from the business point of view. What alone matters is that the integrity and business acumen of the men engaged in this informal but prescient exchange of views should be

beyond question. It does not even reduce the formal power of the board of directors to arrive at independent conclusions.

However, the board members in this case, like the executive officers, are nominees of the minority interests. The *ad hoc* discussions which take place outside board meetings act therefore as a means of streamlining proposals to be placed before the board. Without such informal discussion the board would have to consider, unprepared and without advance notice, weighty and complex matters which otherwise might require interminable discussion before sound judgment could be arrived at. Through the process of informal discussion with board members and with representatives of the banking and family groups, something tantamount to an executive committee has come into being. It has no formal place in the company's organization, is not illustrated on the chart and if so illustrated would lie buried partly in the box representing stockholders and partly in the board of directors. Actually, it exists independently of both. It does not represent stockholders as a whole but merely a minority group. It is not appointed by the board but appoints the board.

That is the reality of the situation; a reality wholly dissimilar from what the chart suggests. We have said that it is not necessarily objectionable. Yet we must concede that since this process of decision-making and of initiation has grown up over the years, it might be preferable to have it incorporated as an official executive committee operating in the plain light of day.

Let us meanwhile compare it with the operation of company A, whose organization chart corresponds to that

of Company B in that it shows a flow of authority from the stockholders through the board of directors to the operating executives. There is no appreciable minority interest in Company A and the charge of control by minority stockholders cannot be leveled. In fact, only two members of the board of directors possess any appreciable stock interest in the company and not one of the officers holds more than four hundred shares of stock. The collective ownership of company stock by officers and directors constitutes less than four per cent of the total issue. There are, in short, no minority groups to confer with, no one whose special interest might needs be deferred to.

This does not make the company any more democratic. It simply makes the organization chart a trifle more unreal. Control of policy is absolutely in the hands of professional executives who regard themselves as professionals hired to do the job of running the company to the best of their ability. The proxy machinery is in the hands of a chief executive who uses it to elect a board of his own choosing. The result in Company A is that consultation between the officers and the board is often a mere formality. Policy is determined by the executive group, the board being consulted only to the extent required by law. The stockholders, owners of odd lots for the most part, are informed each year, in the president's letters to stockholders, of the major decisions made during the year and of the general nature of the plans which the executives have in mind for the future. Beyond this, little disclosure takes place other than the usual financial statistics contained in the company's annual reports.

In some other respects the charts are equally deceptive.

Company B is a line company, i.e., decision-making theoretically rests with the chief executive who gives orders to his subordinates who in turn translate these into instructions to their subordinates and so on down through the lower levels of the organizations. The amount of detail increases through successively lower levels, each subordinate officer down to the foreman being responsible for transforming the orders he receives into work performed.

But even this process is in part illusory. The company is a large one. The amount of decision-making, especially over detail, is prodigious and occurs at every level of the structure. Even the initiation of plans, in other than an over-all sense, is beyond the capacities of any single man, the chief executive included. Equally obviously, the more intimate details of suggested policy are quite beyond the powers of that intimate group of bankers and family representatives who finally control the firm.

The chart does not indicate where these plans originate. From our knowledge of the company, we know the main initiative in planning in Company B to be at the vice-presidential level. As the chart illustrates, there is a vice-president in charge of each department. Although these department heads enjoy little official autonomy they have, over a period of time, grown to act as separate planning agents, as founts of suggestion as well as administrators of their separate departmental functions.

Again we encounter informality. Their actual status is not clearly definable and is certainly not capable of being traced through the apparent lines of authority. It appears, nevertheless, that the department heads are increasingly playing the role of a policy committee which lacks the

official power but exercises the function of making policy recommendations to the president who after reflecting upon them decides whether or not to convey the proposals to the representatives of the controlling interests. In other words, if we were to trace the true flow of initiative we would find a line organization in reverse. Much policy originates at the vice-presidential level, moves upward through the president to the dominant stockholder representatives, and there meets its final ruling in advance of the formality of board approval.

Company B thus has two aspects which its organization chart cannot illustrate. Both of them place the president in an apparently invidious position. It would seem that one of his functions is to act as a clearing house through which suggestions are passed above him and final decisions handed down through him.

There is no real reason to regard this position as invidious. The peculiar genius of this man lies in his ability to harmonize the practical viewpoints of his operating vice-presidents with the broader business experience of the group to whom he acknowledgedly defers. The situation has come in for some criticism but the criticism is unwarranted and might not be heard if the formal organization of the company corresponded strictly to the realities of its control system.

Let us suppose that instead of the president being also chairman of the board, a separate chairman were appointed, above the president in authority and frankly representing the controlling financial interests. Let us further suppose that a formal executive subcommittee of the board were to exercise the consultative function which

certain board members and influential stockholder representatives now exercise. Finally, let us suppose that some if not all of the department heads constituted along with the president and chairman a policy committee with broad advisory powers.

The theoretical structure would then correspond more closely to the actual way in which Company B operates today. We might even be able to reproduce a reasonably explanatory chart on paper. But not a single advantage would be gained so far as the actual conduct of the enterprise were concerned. In place of the presently informal but real process by which the various functions are harmonized, there would have been created a rigid and systematic structure representative of what now exists but not necessarily representative of the form of organization the company might need should important changes occur either in executive personnel or in ownership of the controlling stock.

The banking group which exercises partial control of the company originally acquired its interest as a long-term investment. This does not necessarily imply that its ownership of stock will persist indefinitely. Consideration has been given on more than one occasion to suggestions that it distribute its holdings and invest the proceeds in a more rapidly growing enterprise. Should this occur, the group would wish to withdraw from both formal and informal participation in the affairs of the company. Likewise with the family holdings. They constitute a disproportionately large item in the total investment of the estate. The effect of inheritance taxes and the desire for greater diversification might someday cause considerable liquidation.

It is possible, then, for the operative causes of the present form of control to vanish. Should that happen, the structure we have traced would cease to exist and the company might then be faced with a major problem in management reorganization. It is not inconceivable that the president would wish to retire should the financial groups withdraw from control of the corporation. If this were to take place, the entire internal structure of the company would undergo a change. His successor would not need to be a man capable of harmonizing the interests of an outside control with the ambitions of an unusually active group of official subordinates.

The formal organization chart, therefore, tells us nothing of importance. It does not illustrate either the origin of authority or the direction of its flow, nor does it show us where policy is initiated or by whom it is ruled upon. As a matter of fact, not even the most anatomically accurate organizational chart can illustrate these vital matters unless the name of every man who in any way participates in policy formation is placed upon it and unless we are told just what part he plays. For it is the man and not the title who controls affairs. The man may assume the title, as did Sloan in General Motors, but his exercise of authority is likely to precede that assumption. Mr. Sloan, in point of fact, was the real operating head of General Motors Corporation while still vice-president.

Therefore, when analyzing the structure of a corporation, we must analyze, especially at the higher executive levels, the actual relationships existing among a group of men rather than the formal relationship between a group of official titles. The functions actually exercised by a

particular officer may and frequently do exceed the formal powers of his post. Just as often, the implications of his title exceed his actual exercise of authority. Because these matters are human they are in a constant state of flux and are not finally expressible on any chart intended to show how an evolving organization functions.

V

Appraising the Product—Division Organization

THE product-division form of organization has become increasingly common. Three main factors have contributed to this trend. The first is the growth in size of most corporations and the increased diversification of their products. The second is the influence which scientific concepts have had upon specialization of function. The third has been the war.

Pressed by war's demand, many companies found it necessary to create subsidiaries through which to produce in large quantity items which, an insignificant part of their sales dollar in prewar years, had not previously needed a separate organization for their production. In addition, rapid expansion of facilities, plus inventory and other financial risks incurred in production of materiel, made it necessary for many companies to concentrate such risks in subsidiary limited liability corporations devoted solely to military purposes. The effects of this are clearly traceable upon most of our large corporations and appear

to have accelerated the trend toward the product-division structure.

Because this trend is significant in managerial terms, we intend in these pages to outline the method we have found most feasible in evaluating its worth for any individual corporation. It will be found that the mode of criticism we adopt is, in many respects, equally applicable to companies with differing forms of organization.

The true explanation as to why plants are located where they are is often different from what we would expect. One would expect it to be: Advantage of location with respect to markets, raw material, skilled labor, etc. In point of fact, many plants have been constructed with none of these factors in mind. Literally hundreds of factories are so situated that transportation costs are needlessly high, access to raw materials is difficult, shipping and deliveries are irregular, and no special advantage is or ever has been enjoyed with respect to labor. In a number of instances, location of the plant is outrageously uneconomic and completely unjustified from even a rudimentary business point of view.

It is an unfortunate fact that the preference of some past chief executive for a particular community has often outweighed other considerations in determining plant location. One can well understand that when America's industrial potential was just beginning to be realized, the tendency was for plant to be built in the spot a man knew best and liked most. Most of our family businesses grew up that way.

This haphazard original selection of sites has created a hangover from which the economy is now suffering. As

corporations have grown in size, as mergers and consolidations have brought these erstwhile family businesses into the orbit of the diversified corporation, the tendency has been to leave the plant exactly where it was when the mergers first took place. Few companies have yet seriously examined the possible profit of building a new plant in a deliberately selected location and abandoning or selling those uneconomically situated. This is perhaps the most serious business problem of our time. Much that is wasteful and inefficient in the conduct of our businesses is an inheritance of the lack of vision shown by past generations in choosing their plant sites.

Our first task, then, is to decide whether a plant is located on the best possible site and, if not, whether building a new plant in a more desirable area would prove profitable. We would wager that if every corporation in the United States gave serious consideration to this question and were to act upon findings impartially and scientifically arrived at, twenty-five per cent of our factories would seek new homes. This would be true of an even larger proportion of the plants operated by companies which have increased in size mainly through the merger process.

In too many corporations there is little doubt that despite disparity of products and dissimilarity of markets, the entire operation might better be housed under one roof than in the presently scattered plants. Decentralization is no necessary virtue. It might be or it might not, depending entirely upon individual circumstances. Therefore, in a number of organizations now operating under the product-division form, more economical operations

could be achieved by abandoning that form simultaneously with the concentration of scattered facilities.

The entire structure of the corporations, so far as the internal relations of management go, would thereupon change. The significance for our current purpose lies in the fact that their present management structure, efficient in relation to the present management problems of the firms, is inefficient compared with what might be achieved if the basic physical facts of these corporations more closely corresponded to the requirements of the operation.

Since this is the unhappy state of affairs, the product-division form of organization is often not the best the company could adopt but is simply the best way to mismanage the firm. We must not, therefore, permit ourselves to be impressed by the ingenuity and apparent complexity of the organizational structure. Even if the management can show a consistent record of success, but has achieved it despite adverse location of plant, we cannot rate the management highly unless it is taking steps to correct this fundamental defect in the organization. A management in other respects inferior might warrant a higher rating if it has taken steps to move its facilities from uneconomic sites and to place them where their full potential can be realized.

The paper industry offers a number of examples worthy of study. The more interesting among them from our point of view are not those which demonstrate a management's failure to appreciate the importance of proper plant sites, but those which show to what profitable use a realistic management can convert such an elementary observation.

Marathon Corporation, for instance, some years ago began to run short of sufficient timber to carry on operations at the optimum rate. Many paper companies in the past have encountered similar difficulties. The subsequent history of most of them has been first a change in the nature of the product to take advantage of whatever timbers might still be available in the region, and afterwards an upgrading in the type of product so as to move out of highly competitive fields into those in which even redundant equipment could earn profits during times of high demand. In most cases, this has been followed by eventual dissolution of the company or, more frequently, by abandonment of plant or its sale for a negligible figure to some low-capacity operator in the field of high-quality paper products.

Marathon could easily have followed this course. Certainly, had its decision been based upon what has been the experience of the average paper company in the field of northern kraft, it would have planned to move South and perhaps have sought entirely new markets.

But the Marathon Corporation produces a unique product. Its main line of manufacture involves not only bread wrappings and similar waxed and coated products, but also a complete line of cartons for butter, oleomargarine, ice cream, frozen foods of all sorts, and, in fact, everything that has to do with food. As its supplies of raw material neared exhaustion, the company was faced with the decision as to whether to move, perhaps to the South where the growth cycle of timber is shorter, or to abandon its almost unique line of products, or to find some way to stay close to its major markets where the nation's cheese, butter, and flour

are produced. Its ultimate decision was to build a bleached sulphate pulp mill in Ontario, Canada, with a rated capacity of 300 tons of pulp per day. The total cost of the program was in the region of \$30,000,000.

It may seem that this was a simple decision to make since all the company did was cross the Great Lakes, acquire a land site with adequate stands of timber, put in docks and railroad spurs, and build its new mill. Actually the decision was reached by much more complex, almost circuitous reasoning.

From 1935 onwards the trend of almost all kraft producers has been southward. Cheap cropped timber located economically and able to be bought on contract from southern farmers had led to a general retreat from the field of northern kraft. The mental pressure exerted upon executives of kraft paper corporations to think in terms, if not of abandoning northern operations, at least of starting operations in the South, was very great. It was difficult to go against this tide.

The officers of Marathon weighed the advantage to be gained by going to southern woodlands against the disadvantages in the form of higher freightage and loss of immediate personal contact with their accustomed markets. In face of the general trend, therefore, whilst other companies were moving South, Marathon moved even farther North. By so doing, it maintained its hold upon substantial local markets. It offset the cheaper timber of the South by low-cost transportation across fresh water. The result has been to make even firmer than before its grasp upon a splendidly profitable and progressively expanding market.

This example is unusually interesting. Too infrequently

do managements reason as lucidly as did that of the Marathon Corporation. To pose a problem in its completely abstract form, to reject the assumption that whatever others are doing profitably is necessarily the way to make profits, and to ask what, left behind, is still worthy of exploitation, demands an unusual type of managerial mind. That sort of mind does not manifest itself often enough in the field of business organization. But when it does it earns, by natural consequence of the implementation of unusually clear ideas, the splendid reputation which this management has gained.

It could be objected, of course, that if everybody had asked what was being left behind as the move southward progressed, then nobody would have moved South or nobody would have stayed North. This merely emphasizes the point we have so often made that truly good management is an unusual quality; that good management is actually better management; that it is outstanding only because it usually does things for unusually lucid reasons.

It should need no emphasizing that management personnel is subject to more rapid change than are plant and equipment. The merits of a particular group of individuals, therefore, can cease to be attributes of a business organization while the demerits of uneconomic location continue. In short, a management may "slip." If plant sites are uneconomic, lowering of managerial quality could result in disaster, especially if competitors, even small ones, have remedied this geographic fault in themselves. A management group which does not provide for this contingency, which fails to leave for its successors a plant in the finest possible technical condition and located in the most

economic of available sites, has failed as a management no matter how much money it may have made for its stockholders in the interim.

Noneconomic Causes of Uneconomic Sites

In some corporations, plant location is known to be improper but is permitted to continue because it suits the personal wishes of certain of the executives. In more than one instance after mergers have been consummated and the question has arisen as to which plants to retain and which to abandon in order that efficiency might be increased and competition between intracompany units reduced, the choice has been made for other than business reasons. The author knows of company after company where an uneconomically located plant has been retained for many years merely because the executives operating them have preferred to reside in particular communities.

In the case of mergers and consolidations, the presumption is that such moves benefit the entire group of corporations to be gathered under one control. If, therefore, uneconomically located plant is not abandoned because certain personalities in the merger do not wish to pull up their roots from the communities in which they find happiness, the entire welfare of the organization is sacrificed to the whims of a few men. Original construction of plant by a businessman willing to take his own chance of loss by building on an inadvisable site involves a predominantly personal risk. But if after merger, which presupposes a movement towards efficiency, similar factors are allowed to sway important decision-making, then the whole purpose of the joint-stock corporation is negated.

A number of companies have opened branches in California although the volume of business done by them in that state warrants nothing more than a modest district office. In some of these cases, the main attraction has been that of the pleasant California climate. But a more modern note has now been introduced. Some corporations maintain airplanes, large multi-passenger jobs. The author knows—and at times has envied—the executives of certain of our companies who love to be flown and who maintain offices separated by a whole continent mainly to satisfy their love of flying. There are others who cannot stand the East or the North in winter, sinus trouble being the usual explanation. To them a California office is a Godsend. A Los Angeles office and Palm Spring weekends have cost hundreds of thousands of dollars to more than one company.

No matter what the reason, the whole question of location, whether of plant or of executive offices, is a matter for graver study than is given to it by the average management. The consequences of a corporation's choice of site, upon both the structure and the internal relations of a corporation, are profound. They are formative factors which, perhaps for generations afterwards, determine the sort of organization a company must adopt until it performs the surgical operation of ridding itself of parasitic location.

Uneconomic Products

In like manner, we are interested to know not only where the company has located its plants and offices but why it produces and sells what it does. Again the expected answer does not always appear. Most diversified companies

produce for market some items which do not yield a profit commensurate with the capital invested in them. Yet the companies continue to produce them and to disturb their organization with needless complexities which could be disposed of by discontinuing the unprofitable lines.

Why do many companies operate in this way? What makes them continue to turn out goods which are neither very useful to society nor reasonably profitable to their fabricators? In the majority of cases, continued production of unprofitable items is usually the result of inertia on the part of management. The average management group has seldom originated the full line of its company's products. When its members took office they did so in a company already engaged in the production of the items in question. The problems connected with their production and sale have frequently been the main preoccupation of these officers for years before their election. The organization, in other words, has grown up around these goods. Its problems and the forms it has taken in trying to solve them have been reflections of the production and marketing difficulties of these products. Consequently, the tendency is towards continuance of the uneconomic operation, with the constant hope that some semi-miracle of management might cure the defect or at least mitigate it. That miracle, one might add, too often takes the form of cutting wages to compensate for the unprofitableness of the line.

It is in the diversified organization that such unsound business practices can continue for years unsuspected by the stockholders, by the board, and sometimes even by the chief executives. Unusual profitableness of one line can more than make up the loss on others, an excuse often

given for diversification impossible to justify on other grounds. But this is merely to say that mismanagement can be cloaked by diversification, as indeed it can and often is. A truly sound management would not continue for any long period to turn out goods on which no profit was being made. It would either make sure that the production and sales methods were so revised that profitability entered the picture or it would discontinue the line altogether. We might add that, to our knowledge, convincing the members of a management that they had better drop an accustomed product is about as easy as convincing them that they are not the best possible men to run their company.

Therefore, just as we must ascertain the real reason why plant is located where it is, so we must learn why the companies under study produce the products they do. The factors of geography and nature of product are determinants, not consequences, of the form of company organization. A high degree of structural articulation may be the best possible way to run a bad company but does not bestow much merit on the management. For a management trying its best to push the wrong line or to operate an inadequate plant is not a particularly commendable spectacle.

It is for these reasons that the theory of the product-division structure was conceived. Abstractly, the product-division structure is intended to segmentize the separate operations of a diversified company in such a way that all the separate economic and business checks which operate in the unit-product organization can continue to make their influence felt.

Had mergers and consolidations not occurred, the highly

diversified company might not have come into being. Had the highly diversified company not developed, the undoubted benefits of mass production and mass distribution might not have been realized. But having come into being, the well-conducted diversified organization is finding it advantageous to return to its earliest form of unit control.

There is a fascinating roundaboutness in this evolutionary development. By negating the unit-product company, the diversified organization has achieved giant size. Having achieved giantism, the great corporation can maintain it successfully only by recreating smaller units, each corresponding to what the one-product company might have become had the diversified corporation not evolved.

It cannot be too strongly emphasized that when one speaks of the product-division form of organization, one must distinguish between those companies in which it is fully realized and those in which the movements towards it have been merely half-hearted. Of the former, General Foods Corporation is an outstanding example. Its separate divisions operate as independent, autonomous corporations subject only to the more general controls imposed upon them by the entire management philosophy. The directors devote themselves primarily to corporate rather than to divisional problems. The service divisions, in particular the central sales office, regard the constituent units of the company not so much as parts of one harmonious whole but as clients. They refer to them in these very terms.

The fact that they do so is not without meaning. Whatever assistance the executive officers of General Foods can give to the heads of the autonomous divisions is based upon

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the assumption that the men running the separate units are the best men the company could hire to conduct those operations. In all matters which are not horizontal to the entire organization—such as the company's refusal to engage in cooperative advertising with distributors and retailers—the division heads conduct their separate subsidiaries as independent businesses. Like the company as a whole, they must show profits and make progress. Just as the General Foods Corporation as a whole is answerable to its stockholders for the consequences of its business policies, so the separate divisions of the company are ultimately answerable to the board of directors for the results of the business policies pursued by themselves. Nevertheless, the separate units possess separate, autonomous responsibility.

The result is that the profitableness or unprofitableness of the separate divisions is at all times obvious to the chief officers of the organization. Operating the divisions severally develops a completely independent check, quite spontaneously generated, upon the changing profitableness of certain products and upon the relative merits of the policies followed in the various branches of the enterprise. Even upon such matters as research, to the extent that the research work in the company is not financed horizontally by a separate corporate appropriation, the divisions quickly show the profitableness of the research which they generate. In approaching the sales and research divisions of the company, the only two service departments with separate departmental budgets, they do so as fee-paying clients paying for special work performed on their behalf and bearing, out of their several gross profits, a portion of

the total costs of such service departments. The service departments are, therefore, self-liquidating on an annual basis. They show neither profit nor loss to the organization as a whole but have their costs borne by the separate divisions according to various formulae worked out and constantly revised by the comptrollers and other executive officers of the service departments.

In General Foods Corporation, we therefore have a paramount example of the product-division structure developed in part to correspond to the organic separateness of the various products, their production problems and marketing, and in part to create a system of automatic checks and counterchecks upon the operation as a whole.

It is as though the separate divisions were small corporations, each, quite separately, having achieved a degree of corporate efficiency normally impossible for the small corporation to attain. This, indeed, is the precise reality. Gathered together under one central controlling power, helped and nurtured by the general business experience and fundamental financial strength possessed by the central organization, the autonomous divisions of the General Foods Corporation have received a form of aid nowhere available to them had they been entirely separate corporate entities. Again a paradox emerges. The product-division structure realizes itself in full completeness by recreating in more perfect form the relatively small business organization which the diversified corporation—of which the product-division form is probably the ultimate expression—in theory negates.

The fully developed product-division structure is entirely functional. Within it there is no place for precon-

ception. Its divisions meet the challenge of relative success. Their managers, ambitious men as are all business leaders, rise or fall in importance within the corporation which employs them proportionately to their achievements. In human terms and business terms alike, an intramural competitive challenge is presented to each man and to each unit of the product-division organization. Given the proper quality of central leadership, this can, as it does in General Foods, lead to a degree of administrative efficiency almost impossible to attain were the divisions totally independent businesses and quite impossible of achievement were the divisions conglomerated into one undifferentiated economic mass.

The fundamental thesis in the product-division structure is that each product, or small group of allied products, shall stand on its own feet, earn its own keep, and, under its own immediate management, prove its independent fitness for survival.

Unfortunately, not every product-division company really operates this way. There are still too many instances of companies which, having adopted the general product-division form, retain within each separate division an unwarranted multiplicity of products. Normally, there can be found among such products a number which, if separately incorporated in special divisions devoted to their production and marketing, might prove profitable but which, as yet undifferentiated, now suffer an obscured loss. To the extent that this is true, certain of our product-division corporations are deceiving themselves as to the realities of their controls. This is no criticism of this highly specialized form of organization. It is merely a statement that it has

not been carried far enough. It is as easily possible for an autonomous unit of a product-division company to compensate losses on one item with unusual profits upon another as it is for the nonsegmentized corporation to balance inadequate returns upon a number of operations with exceptional returns upon others.

The problem, then, is how minutely such operation should be segmentized. The solution is immediately obvious. Product-division organization is never justified unless volume production and mass sales, with all the related economies of conveyor production and streamlined distribution, are possible for each product the company makes and sells. That is the core of the problem. The product-division corporation must have a mass market for all its output and must be able to adopt mass production methods for all its items. If these things are not true, the product-division form has no economic warranty. If they are, this specialized form of structure is an indispensable ingredient of efficient management, economical production, and fully exploitative marketing.

We have chosen to dwell upon the product-division form of organization because it offers not only the finest possibilities of development for the multiple-product firm but likewise, in its separate divisions, may incorporate all the problems encountered by smaller corporations. The multiple-product firm not organized on a product-division basis can, as we have asserted, go on for many years with unprofitable operations not known by the officers to be losing propositions, despite the attempted perfection of its accounting techniques.

By contrast, a single plant uneconomically located is

soon known as such and a sole product which cannot meet the needs of the market quickly puts its producers out of business. But offsetting the disadvantages of one location with the virtues of another or losses upon one product with profits from others obscures the facts and enables colorless companies and ineffective managements to continue to survive and perhaps even to make a little progress.

VI

Financial Administration as a Measure of Management

ANALYSIS of corporate finance as a continuing process is essentially one of historical comparison. Capitalization as of most recent report is compared with past capitalization at stated periodic intervals, usually of three or five years. An alternative method is to compare capitalization and profit and loss items at both the beginning and the end of each significant cycle in a company's business history.

The former method is essentially unanalytical, although it does make it possible for the growth and change in a company's financial position over a stated period of time to be perceived at a glance. It is employed not for the purpose of evaluating management, not even financial management, but solely to estimate whether the company appears to be, and to have been at all times, a good investment and a sound credit risk. It is throughout statistical both in method and purpose.

The second method is necessarily analytical although its tools are equally those of statistics. The financial history of

a corporation is examined by those employing the method over the time gaps 1918–1922, 1924–1928, 1929–1934, 1934–1938, 1939–1941, 1941–1945, and 1945–1948. The separate periods are examined independently. Readers familiar with contemporary economic history will appreciate the significance of the periods chosen.

The period 1918 to 1922 represents an unusual cycle in American business history. By 1918 the United States had become a substantial creditor nation. It also encountered for the first time an almost noncompetitive market for almost any sort of commodity which it might care to export. Superimposed upon the industrial inflation which the First World War brought to this country arose demand in all parts of the globe for industrial products and heavy equipment of all types. Meanwhile, a domestic revolution in the way of living was under way. Road building was in progress in most parts of the country. The automobile industry was making its first important thrust into the social heart of the nation. The people were taking to wheels.

Upon corporations, the consequences were as revolutionary as upon the nation as a whole. The notorious price spiral and fantastic inventory inflation which followed the First World War expressed the immaturity of most of America's corporate managements at that time. The resultant short-lived but severe depression with its writedowns of inventory values and its destruction of billions in capital assets gave the first sharp rap over the knuckles to the leaders of the new types of American businesses in this new type of situation.

It is by now difficult to recapture the spirit of the time—and this statement is made advisedly although a price revo-

lution of equal dimensions is under way as this is being written. But whatever the spirit, whether of industrial piracy as many assert, or of mere bewilderment in the face of an unprecedentedly violent upsurge and downswing in prices and industrial activity, it is certain that ineradicable marks were left upon corporate managements by the experiences undergone. Equally, of course, many corporations bore until recently the deep scars resulting from the by now discarded managerial concepts which then misguided a number of major companies.

The period 1924 to 1928 was not essentially different in character. The inventory inflation of 1919 shifted to the plant inflation of 1924-1928 and to the stock market inflation of 1927-1929. This was a shift merely of the scene of action and not of the nature of the action itself. Despite the price crash of 1920 and the continuous downtrend of agricultural and raw material prices from 1925 straight through to the depth of the depression, the American atmosphere from the close of the First World War until the ushering in of the Great Depression was essentially that of speculation, not of sound business conduct.

This speculation, felt at different times in the decade in farm prices, land values, industrial inventories, building prices, valuation of industrial plant, and finally, securities was bound to work itself out. It did so in the period 1929-1934 when company after company had to face reality. The water in the form of overcapitalization which had been injected into so many portions of our economy was ruthlessly squeezed out. The deflation was the worst in the history of the world.

Business weathered this depression—but not unaided.

The banking holiday, the NRA, and the pump priming of the New Deal undoubtedly helped to revive business activity. They did not, however, deal with the fundamental maladjustments in the situation. By 1938, the effects of the pump priming policies already had begun to wear off. Depression settled back over the economy, industrial activity receding at even a faster rate than it had in the first year of the Great Depression. The 1938 downswing was confined almost entirely to the United States. It affected foreign countries almost solely to the extent of curtailment by the U. S. of foreign imports. Imports in 1938, as a matter of fact, were 30 per cent below those of 1937, although exports had not declined significantly.

The speed with which this downswing occurred and the accompanying break in the prices of primary products caused a serious price war to begin in many lines of consumer durable goods. Company after company experienced a serious loss in the year, even though the physical volume of sales did not decline significantly. In dollar terms sales did sag, perhaps reflecting a sudden acceleration of that undertow towards lower basic prices which had been in process between 1925 and 1933. The period was one of the most extreme business difficulties and required unusual business acumen to avoid losses.

Most business leaders are frank enough to admit that had the foreign demand for American goods not remained high throughout this period, and had it not been added to by the speeding up of defense preparations in most European countries, the bottom might easily have dropped out of industry. But before the end of 1939 most of the world was already at war. The deflation was over and the stage

was set for an inflationary cycle which, at the moment of writing, has not yet worked itself out although there seems little doubt that it is already past its peak.

With such a variety of experiences, such a rapid movement from one type of industrial problem to another, American business leaders have been faced with almost every conceivable type of challenge. How they have met those problems, how corporations have fared under their leadership, can only be discovered by examining corporate history relative to the movement of the trade cycle itself.

It is clear, then, that analysis of a company's financial experiences during selected significant periods automatically sums up the capacity of its management.

Unfortunately, far too many managements seem prone to believe that any trend, no matter how recently established, is likely to be of long duration. They therefore fail to take adequate precautions against the whipsawing effects of a sudden reversal in cyclical factors. Others are still wedded to the belief that industrial fluctuations occur as rhythmically and regularly as clockbeats. The type of "precaution" they consequently take frankly frightens one. But some among our corporations, recognizing that sound business conduct does not consist of outguessing the trade cycle but of continuously seeking to expand markets whilst at the same time adopting safeguards against business reverses, continue to make progress even in the face of adverse general conditions.

It has been commented that the American economy makes its greatest progress during times of war but that the individual corporation can make its greatest progress only in times of general distress. This point of view grates

harshly but it contains more than a little truth. A company which has exhausted its credit during a period of expanding industrial activity need not find itself in distress during a subsequent time of slack trade. But if its credit has been exhausted, it is unlikely to be able to take advantage of the distress of others. Forbidding as the thought may be, a management which does prepare itself to benefit from the misfortunes of others is precisely the management best suited for the rigors of a competitive climate. Consequently, there is more at issue than the question of whether the individual corporation has secured itself against unforeseen contingencies. To be truly well managed it must also have made preparation to benefit from the opportunities presented by the pressing circumstances in which incompetent competitors sooner or later find themselves.

To gauge by a genuinely objective standard the performance of managements relative to the trade cycle, a dispassionate measuring rod is required. Comparative historical analysis over selected significant periods is the most useful of tools to this end.

The process can best be illustrated by applying it to a corporation especially susceptible to the economic vicissitudes of the past thirty years. The subject company is a major processor of a basic commodity and is a leader in its industry. Thirty years ago, its management was outstanding compared with others in the same field. Had this not been so the company might have gone into bankruptcy in the 1921 deflation, as did most companies in the industry. It kept out of bankruptcy although it got itself into more

than a little financial difficulty. How and why is the point at issue.

We are too far away in point of time to recapture the precise mode of thinking of the company's officers during the period immediately following the First World War. But, as history woefully records, the price of its main product rose by 195 per cent in the six months from November, 1919, to May, 1920. During the following seven months, the selling price crashed 76 per cent from the postwar high. Such a price revolution obviously could not have been anticipated by any management. Nevertheless, the general shape of the trend was capable of being foreseen and, in fact, was foreseen by the officers of the company.

So conscious were they of the dangers inherent in the situation that they pleaded with the Government to continue some form of price control of the product. They felt that although the industry should be restored to private control as early as possible, to do this overnight would lead to speculative pricing of an item already in short supply. This, they feared, must lead to a serious price inflation, with the implicit threat of a future deflation of inventory values and of possible financial difficulties for the entire industry.

Despite the accuracy of its own long-range forecast, the management seemed as deceived as other managements over the short-range demand for its products and the probable course of prices. The fact that all its competitors were similarly misled would deter one, especially at this late date, from being too critical of a management which merely followed an industry-wide pattern. Any management, including the best—and this management was un-

questionably the best in its trade—can misjudge the future of prices and the probable duration of high demand.

But once having conceded that such misjudgment may be excusable, the question arises as to how the finances of a corporation should be handled, whether the management's judgment prove sound or faulty.

In 1920 the company's earnings rose by \$5,000,000, or 69 per cent over 1919. In 1919 earnings had amounted to \$6.80 per share, out of which \$1.00 per share was paid in common dividends. In 1920, earnings per common share were about \$12.00 and common dividends \$4.00. In short, the company earned \$16.80 per share of its outstanding common stock in the two years 1919–1920 and paid out as dividends only \$5.00 per share in the same period. On the face of it, this was more than a little conservative.

But during a period of price revolution, when the possibility of a collapse in prices was actually foreseen by the company's officers, the reality of the recent earnings was surely a matter for some question.

In times of industrial tension, it is axiomatic that conservative managements turn their attention to their balance sheets and base their dividend policies upon their visibly realizable assets rather than upon the reported earnings which might—as in this case they did—subsequently prove to be more of a bookkeeping fiction than an economic reality.

The point to be made is that 1920 was the central point of a trade cycle so violent and so compressed that ordinary standards of business judgment as to how much of earnings should be distributed in the form of dividends ought not have been applied. This is more surely the case since the

company itself pleaded with the U. S. Government for official efforts to prevent an inflation from occurring.

In fairness to this management, it should be pointed out that American business as a whole was still unversed in trade cycle theory in the early part of this century. Americans in general had not yet become convinced that downswings in economic activities are a normal and natural feature of our economic order. Despite the cyclical movements of trade in the past, businessmen held the view that expansion of activities could be pursued with fair consistency. They tended, therefore, toward less caution than is common in these days. Because of this, what seems now to evidence a failure to realize that a most prosperous company can find itself pinched for funds when prices begin to sag, seemed sound policy at that time.

Moreover, the 1920 dividend was not paid entirely out of 1920 earnings but in part out of delayed profits earned in the prior year. Therefore, it seems probable that had the reported earnings of 1920 been no higher than those of 1919, an increased dividend would still have been declared. Yet even this fact emphasizes rather than modifies the opinion of the author: that it is upon balance sheet factors and not merely upon the earnings statement that a dividend policy should be based.

In 1921 came the debacle. The company's sales declined by 78 per cent from their 1920 level. A profit of \$12,000,000 in 1920 was followed by a loss of \$7,900,000 in 1921. But even in 1921, \$2,500,000 was paid in common dividends. This payment was made despite the fact that by December, 1920, prices were already at the lowest level in four years. One dollar per share common was distributed

in January and again in April, 1921, although there was no evidence that prices were reviving. Fifty cents per share was distributed in July although the company's selling prices had sunk to little more than one fifth of what they had been at their 1920 peak.

The 1921 distribution was made although the company had found it necessary in March of that year to borrow \$10,000,000 of first mortgage collateral sinking fund money at 8 per cent!

In other words, the management—already suffering the most breathtaking price collapse in the history of its industry, seeing its sales shrink away month by month, watching its inventory values dwindle, and being forced to pay 8 per cent for borrowed funds—actually distributed two and a half times as much dividends to its common stockholders as it had two years before when things were on the upturn.

It is obvious that financial management in that period was less realistic in its sense of money values than is the average management today. There would now be no little eyebrow raising if a corporation were to go into the money market for loans to tide it over a period of heavy losses and at the same time were to distribute to common stockholders funds equivalent to 25 per cent of the loan. As a matter of fact, the \$10,000,000 which was borrowed in 1921 was \$1,000,000 less than the total amount of the company's losses in that year plus its dividend disbursements to preferred and common stockholders.

The balance sheet showed the enormous swing from which the company had suffered. Surplus at the end of 1919 had amounted to \$22,367,000; to \$29,932,000 in

1920; and fell by \$11,000,000 to \$18,982,000 in 1921. Significantly, earned surplus at the end of 1921 was more than \$3,000,000 below what it had been in 1919. The company was poorer at the end of this brief two-year cycle than it had been at the beginning. Calculated over this cycle, 65 per cent of the earnings of the peak year had been illusory—a condition which is being duplicated in company after company at the present time.

The \$10,000,000 of borrowed money carried a nominal sinking fund provision. However, the covenants of the loan almost totally negated its operation. The bonds were callable at 107½, in whole and not in part, and could be bought for sinking fund at no more than 105. The sinking fund was therefore inoperative. There was no absolute compulsion on the part of the corporation to set aside in cash the theoretical \$250,000 quarterly sinking fund. Unexpended balances from period to period were credited upon the next quarterly sinking fund installment. Automatic operation of the sinking fund was therefore dependent upon the condition of the money market throughout the life of the debt and not upon a rigid annual provision imposed by the indentures themselves. In 1921 and 1922 the bonds sold at the following prices: 1921, 95-105; 1922, 101½-108. Thereafter, the bonds never sold below 105 until 1928. In other words, after 1922 the sinking fund did not come into operation until late in 1928 when the loan had only three more years to run.

From the vantage point of the time and on the basis of the reasoning which the industry had been wont to apply to its financial administration, there seemed no need to hasten to set a special fund aside. Almost up to the date of

maturity of the loan, the current condition of the company had seemed satisfactory—a fact which is difficult for us now to appreciate. The inventory had always been regarded as capable of spot sale or of serving as collateral for short-term loans. A working capital which showed an abnormally heavy inventory did not seem to denote an illiquid position. The management, therefore, seemed safe in assuming that its working capital would enable it to meet maturity of its debt.

But methods of doing business which have proved sound in the past need not continue to prove so. It was this fact which the members of this management group apparently did not realize. They continued to conduct their business as it had always been conducted, a policy well justified by precedent. But they failed to prepare for the unexpected—and it was the unexpected which befell them.

Over the years 1923 to 1929 inclusive, \$9,750,000 was distributed as common stock dividends and \$3,316,000 in preferred dividends, or a total of about \$13,000,000. But at the end of 1922, bonded debt outstanding still amounted to \$9,035,000 and six years later had been reduced by only \$304,000.

Even with dividends of these dimensions, however, the company would have been able to meet maturity of its debt had unexpected problems not arisen. Cash flow from the company's depreciation account alone was thought sufficient to take care of the debt. The depreciation account, in other words, was thought able to serve as a sort of sinking fund. At any rate, the company did have some source of ready cash, the required balance being thought obtainable from the sale of inventory or from inventory loans.

Unfortunately, in 1930, just six months before the bonds matured, the company was stripped of a substantial portion of its negotiable inventories by three unforeseen developments. One was a plan to protect the industry against further erosion of prices by freezing its inventories. This was equivalent to removing the main liquid item from the balance sheet. It made it impossible for the company to meet maturity of its debt by realizing upon its inventory. The second was a drastic government imposed restriction of production; the third, the Hawley-Smoot tariff in 1930.

Had the debt matured in 1928, the subsequent difficulties might have been avoided. The company could have raised money upon its inventory. But when the control plan became effective, the company lacked sufficient money to meet maturity of the debt and lacked free inventory through which to raise funds. It seems, therefore, as though this alone was responsible for this company's later difficulties. In actuality, cautious financial policy would not have regarded the inventory as a fully liquid item. It is doubtful if the management of a company in this industry would so regard it today. Indeed, no conservative management now regards inventory as equivalent to money, no matter what its forecast as to the course of prices.

The issue is of profound importance to financial management. Some observers insist that inventory should be excluded from working capital in arriving at an estimate of the liquid position of a corporation. This may exaggerate the dangers inherent in inventory valuation. But had the officers of the subject company reasoned in this way in the twenties, other provision would have been made for repayment of the company's debt. The company

might not have got into debt in the first place. Or, having assumed a large obligation, it would have held its dividend at a far more conservative level in order that the debt might be repaid without dependence on the inventory.

Banking policy of the period must be held partly responsible for the difficulties in which the company found itself. In these days, the average commercial bank when extending an industrial loan insists upon safeguarding provisions which some managements consider financial strait-jackets. Such was not the case in the twenties. When the company approached its bankers for the loan, it was not extended the privilege of prepayment prior to maturity date. The bank, in other words, would extend only a "straight" loan incapable of being anticipated except by the purchase of bonds on market or by call under the conditions described earlier. Apparently, the lender wanted the debt to run to maturity. These were the only terms upon which the company was able to borrow so large a sum in so short a time.

The management was thus deterred from following the most advisable policy. Nevertheless, once having got the company into debt, the management thereafter ought to have conserved cash. But economic developments of the 1930's were unforeseen. The policy followed in prior years had not prepared the company to weather the storm that was gathering.

Dividends were cut belatedly. Twenty-five cents per share was paid on January 2, 1929, on each share of common stock, and the regular quarterly dividend on the preferred. This represented normal quarterly distributions on both classes of stock but the company's financial position was such that distribution was warranted on neither

class of stock and certainly not on the common. Thereafter, dividends ceased on both classes of stock to help the company meet maturity of the bonds. As a result of dividend omissions and other acts which conserved cash, the funded debt was reduced from \$7,800,000 in 1929 to \$6,466,000 by the end of 1930 and to \$2,000,000 during the following four years, finally being retired entirely.

Let us again defer to the judgment of the management and concede that just as the violent trade cycle of 1919-1921 could not have been foreseen, so the appalling depression which settled over world trade following 1930 was equally beyond anyone's power to forecast. Quite certainly, the management could not expect the company to lose more than \$7,600,000 during the following five years. The fact is, however, that world trade did develop in such a way and that these losses were sustained. As a result, no dividends were paid on the preferred stock from January 2, 1929, to 1937 when preferred dividends of \$18 per share were paid. During 1938, preferred dividends were again omitted. Partial preferred dividend payments were made in 1939 and 1940 but by April 2, 1941, dividend arrears per share of preferred stock amounted to \$54.50.

This recapitulation of the company's difficulties has not been without purpose nor has the author's repeated concession that the management's faulty forecast of the business future is not a necessary ground for criticism. What is important is that whether that judgment was right or wrong, the financial policy adopted following the First World War did not prepare the corporation to ride out future storms. It was a faulty policy, shown by later events not to conform to the needs of the company or to develop-

ments throughout the economy. It did not enable the company to remain in mastery of its problem at all times.

At this stage of the game it is easy enough to make this sort of criticism. In answer to that, let us see what might have happened had a different sort of managerial concept regarding finances imbued the organization.

In the first place, the management would not have regarded it as safe financial policy to rebuild its property on a wide scale and simultaneously to make large distributions to stockholders. This does not mean that a management does not have a responsibility to make dividend payments to stockholders where possible and where advisable.

But common stock investment is essentially risk taking. The function of management is not, as many common stockholders seem to believe, to disburse company funds in order that the common stockholders can survive. It is to preserve, to strengthen, and to develop the corporation and then to make such dividend payments as the corporation's internal condition warrants. But only such as the circumstances do warrant!

Financial caution would have dictated that no matter how much had been distributed while prices were rising, no dividends would be paid once the price bubble had been pricked. Ordinary dictates of caution should have held common dividends to no more than \$2 a share in 1920 and to nil in 1921.

Had \$2.00 per share been paid in common dividends in 1920 and nothing in 1921, \$4,500,000 of cash would have been retained by the corporation. Preferred dividend arrears in 1940 amounted to \$4,112,719. In other words, the

amount of unwarranted distribution to common stockholders in 1920 and 1921 made their influence felt upon preferred stockholders as much as 20 years later.

Had these excessive payments not been made, the company, despite the adversity it was to suffer, might never have needed to forego dividends on its preferred stock. This might appear to be exaggerated advocacy of the interest of the preferred stockholders over that of the common. It ought not be so interpreted. Investors in preferred stock undertake that type of investment because they are not prepared to accept the risk which common stockholding entails. In compensation, they forego the speculative profits offered by common stock. Let it be added that the final interests of the preferred stockholder of this company were not neglected. The owners of preferred stock did very well indeed upon conversion under the plan of recapitalization which finally was adopted.

Developments in current corporate finance do not warrant the belief that the lesson of such companies in the 1921 deflation has been learned by all corporation officers in all industries. In company after company, excessive dividends are now being paid simultaneously with the assumption of short- or long-term debt entered into, usually, for the purpose of plant expansion or new construction during days of inflated plant values. It would be injudicious to predict that the problems, now seen to have been avoidable, which beset many companies in the 'twenties and early 'thirties, are going to beset large numbers of corporations in the years to come. It must be asserted, however, that the past three years has seen a movement

away from the financial caution generated by our depression experience.

It is for this reason that this single example has been chosen to illustrate the enduring difficulties which companies can impose upon themselves by one single act of financial misjudgment. Had the company not been excellently managed in all other respects, the example would have no pertinence. But the management was well seasoned, fully experienced, sufficiently aggressive to be the dominant factor in its industry, and farsighted enough to have perceived in advance that "back to normal" coming too quickly after the end of the war would probably lead to a dangerous cycle of inflation-deflation in its industry. Yet even so excellently managed a company found itself in difficulties because it committed the error of distributing high dividends and going into debt at the same time. It distributed dividends seemingly well proportioned to the company's annual earnings but disproportionate to its real money needs under conditions of inflated inventory values.

The essence of the matter is that in this industry inventory had always been regarded as a liquid item. This proved untrue. Moreover, the dividend policy followed seems from the vantage of the present to have rested upon the belief that recent earnings, averaged over a short span of years, constitute a sound basis upon which to calculate the distributable surplus. Events proved this also to be fallacious. The balance sheet proved—as it must always prove over the long term—the determining factor. The earnings statement is important only to the degree that it produces changes in balance sheet items.

Stockholders do not benefit from dividends distributed

at the cost of the financial stability of a corporation. No management can be regarded as conservative unless this is a cardinal principle of its corporate philosophy. Conservative management questions its own financial precepts, suspects the market worth of every asset which appears among its "realizables" and believes firmly that the unpredictable is bound to happen sooner or later.

How did the company finally climb out of the hole which it had dug for itself? The first attempt proved abortive. In 1936 it was proposed that stockholders vote on a recapitalization plan. Arrears on the preferred then amounted to \$50.75 per share. The preferred was 7 per cent cumulative and noncallable. Common and preferred alike had voting rights, with each share of preferred casting ten votes for each one vote per share of common. The management proposed that each holder of 7 per cent cumulative stock receive $1\frac{1}{2}$ shares of new 4 per cent cumulative preferred stock, participating, after the common had received \$4.00, up to 7 per cent, plus 75¢ in cash for each share exchanged. Acceptance of the plan and implementation of the exchange was to constitute full satisfaction and liquidation of unpaid accumulated dividends. No change was proposed in the common stock. This plan was successfully opposed by a minority group and a revised plan was submitted.

This was declared operative in December, 1940. Holders of the 7 per cent preferred, on which dividend arrears still totalled \$54.50 a share, were enabled to exchange each share of such stock for 1.4 shares of new $5\frac{1}{2}$ per cent preferred and \$14.50 in cash. Finally, the entire issue of the resulting $5\frac{1}{2}$ per cent preferred was retired at \$115 per

share, plus accrued dividends of \$1.37½ per share on June 30, 1944.

It could be argued that the unfortunate financial experience of this company was not the result of financial maladministration but solely of unexpected and unpredictable changes which overtook the industry.

That view is not tenable. Other companies in other industries burdened themselves with debt at the same time and for identical reasons. Yet the terms on which they borrowed and the subsequent management of their debt enabled them to repay their loans long before due date. They thus avoided the difficulties which later beset this company.

One such company, engaged in an allied industry, suffered a steep decline in sales in the year 1921. Between October 1, 1918, and September 30, 1921, although earnings totalled only \$4,163,000, \$4,198,000 was paid as dividends to preferred and common stockholders. From October 1, 1921, to September 30, 1922, a loss was suffered of \$1,200,000 due to the break in prices and the collapse in sales. Like the company discussed previously, this corporation came out of the 1919-1921 trade cycle worse off than when it entered it. The dividends distributed in the three years 1919-1921 had seemed justified on the basis of current earnings. Actually, they had siphoned off the free funds which the management should have conserved to help weather the gathering storm. Because of exorbitant dividend payments, the company was unable to ride through a period of loss without outside financial aid.

There were further similarities. The second company borrowed \$6,000,000 at 7 per cent interest, just as the first

had borrowed \$10,000,000 at 8 per cent interest. The 1 per cent interest differential was equalized by the fact that the first company had outstanding a 7 per cent noncallable preferred stock issue. The second had a similar 8 per cent issue outstanding. In other words, both companies operated in the same type of money market and had burdened themselves in earlier years with cumulative noncallable preferred stock issues whose dividend rates, not high at the time of their issue, strike us as exorbitant in our present era of cheap money. Both had to resort to borrowing during the deflation which followed the First World War.

From there on similarity ended. Whereas the first company's loan matured in ten years, the second company's loan, likewise dated 1921, matured in twenty years. The first was obliged to burden itself with raising an average of \$1,000,000 a year out of earnings to meet maturity of its debt. The second company's management took care that the drain upon earnings should not exceed \$300,000 per year plus interest charges.

In addition, the second bond issue differed from the first in that it carried an inflexible sinking fund which operated as follows: Each December 1, \$250,000, from 1923 to 1926 inclusive; \$300,000 from 1927 to 1931 inclusive; \$350,000 from 1932 to 1941 inclusive. The sinking fund was to purchase bonds in the open market or by tender. During the first eight years it was empowered to purchase such bonds for retirement at 107½ plus interest. Thereafter, beginning December 1, 1930, purchase could not be made at a price in excess of 105 plus interest. The entire issue was callable as a whole only, on thirty days' notice on

December 1, 1930, or at any succeeding interest date at 105 plus interest.

Thus, this issue, under the terms of the indenture, was retired regularly and systematically throughout the life of the debt. Consequently, the occasion did not arise, as in the former case, for operation of the sinking fund to be deferred or for the management to delay making provision for retirement of the debt. As a result, the company was not suddenly called upon to raise an almost impossibly large sum of money in an impossibly short time. The necessity never arose to forego preferred dividends. As a matter of fact, the balance of the funded debt, amounting to \$2,345,000, was called in 1930, eleven years before maturity date.

It is interesting to observe the different basic financial concepts underlying the bond issues of these two companies. The management of the one company accepted—perhaps having no alternative—loan conditions which militated against early repayment of the debt. The management and bankers of the other followed a contrary course. The first mortgage 8's of the former company were callable only as a whole at 107½ on any interest date on thirty days' notice; its sinking fund could not operate to purchase bonds above 105. Thus, the loan indentures induced holders of the issue to refuse tender of their bonds to the company. Throughout the life of the loan, bondholders benefited by withholding their bonds from market and by inhibiting operation of the sinking fund.

The latter company's issue, on the other hand, could be purchased for retirement at prices up to 107½ plus interest only during the first eight years of the debt. Thereafter,

call price and maximum acceptable tender were to be 105. It was therefore profitable to tender bonds in the early sinking fund period. Even after its sinking fund tender price declined automatically from 107½ to 105, as provided in the indenture, there was no financial inducement other than the interest income for bondholders to withhold their bonds from tender.

Underlying these bonds was the intention of the management to retire the debt at the earliest possible date, to offer inducements to bondholders to assist the management toward this end, and to make it legally indispensable for the management to prepare for retirement of the entire issue before maturity date. The rate of retirement of the debt was thus accelerated. In the first company, on the contrary, the bond indentures negated such a purpose, deterred bondholders from tendering their bonds, inhibited the management from making periodic provisions for debt retirement and pushed ever further into the future necessity to prepare to rid the company of these obligations.

From the viewpoint of financial management, the moral is obvious enough.

Appearance vs. Reality

From the point of view of today's common stockholders, the upshot is ironic. Because of the financial difficulties in which the first company became involved, it became necessary to work out a plan of recapitalization which ultimately reduced the amount of noncallable 7 per cent preferred stock outstanding from 78,030 shares to 3033

shares. Preferred dividends ahead of common earnings have thus been reduced from \$546,210 to \$21,231. Moreover, common stock control of the company has been increased from 55.8 per cent of the voting power to 99.5 per cent. But the second company, securing or insisting upon more favorable terms of debt, and therefore enabled to handle more surely the problems which the debt created, did not encounter the same later difficulties, did not accumulate huge dividend arrears on its preferred stock, and never got the chance to rid itself of a burdensome preferred. Preferred dividend requirements ahead of common earnings still amount to \$400,000 per year. The common stockholders still have only 79 per cent control of the company, the exact proportion they held in 1919.

If one were to employ the process of simple comparison and to judge the current condition of these two companies solely from the viewpoint of today's common stockholders, it might seem that the former company has been the more wisely conducted. Common stockholders are no longer burdened with over half a million dollars of preferred dividend requirements; nor do they face a bloc of preferred stock which once could vote almost 45 per cent of the total votes polled and could exclude the scattered common stockholders from effective participation at annual meetings. Viewed in this light, what has happened has been to the distinct benefit of the present holders of common stock.

It is clear enough that in the world of corporate management, things are not necessarily what they seem to be. Nor are the effects produced always those intended.

Improvement in Money Management Illustrated in the Case of National Steel Corporation

The harshness with which we must judge the failure of a number of corporations to handle their finances properly in the years following 1919 is justified if subsequent consequences are the sole criteria. But measured against the spirit of the period and the general conception of money management prevailing from 1880 to 1920 our criticisms must be tempered considerably. Banking has undergone a profound change. The role of money in the economy is now more thoroughly understood and the effects of recurrent trade cycles upon individual corporations are more completely realized.

In the forefront of the thinking of commercial and investment bankers today is knowledge that fluctuations in industrial activity and prices produce both predictable and unpredictable effects upon seekers after loan money. Bankers, therefore, as much for their own protection as in concern for the well-being of their clients, now insist upon conservatism in loan agreements.

Corporations, likewise, have behind them a body of distressing financial experience caused in part by the happy-go-lucky manner in which loans were once negotiated and the unfounded optimism which framed their covenants. Today they are more insistent than in the past upon restrictive clauses in their bond agreements.

An outstanding example of this are the terms upon which the National Steel Corporation in 1939 negotiated its first (collateral) mortgage 3's of 1965. A detailed exposition of the covenants of this debt shows how far industrial and

financial managers alike have progressed in their thinking. For practical purposes, it also establishes a sort of measuring rod against which to gauge the conservatism of other managements in their borrowing procedures.

The purpose of the loan was to redeem the first 4's and first 3¾'s then outstanding and to advance \$5,000,000 to the Great Lakes Steel Corporation. The low interest rate of 3 per cent is ascribable only in part to the excellence of the collateral. The main reason for National Steel Corporation being able to borrow money at 3 per cent, compared with the 7 per cent and 8 per cent coupons so common thirty years ago, is the cheap money policy pursued by the Federal Reserve Board. This advantage is therefore not one earned by the corporation's management.

The loan indentures are nevertheless admirably conservative. The loan is callable as a whole or in part by lot, in amounts of not less than \$3,000,000 on thirty days' notice at the following prices plus accrued interest: 104 to April 4, 1944, not inclusive; 103 thereafter to April 1, 1949, not inclusive; 102 thereafter to April 1, 1954, not inclusive; 101 thereafter to April 1, 1959, not inclusive; 100½ thereafter to April 1, 1964, not inclusive; thereafter at par.

Operation of the sinking fund begins on February 1, 1950, at the rate of \$1,250,000, to be appropriated annually either in cash or in 3 per cent series bonds at face value, or partly in cash and partly in bonds. Cash paid into the fund is to be applied by the trustee to the redemption by lot of bonds on thirty days' notice on the following April 1. Redemption prices under the sinking fund are as follows: Before April 1, 1954, 101; 100½ thereafter to April 1, 1959; 100¼ to April 1, 1961; 100 subsequently.

The company may anticipate sinking fund installments only if paid in bonds. Bonds called for the sinking fund, like bonds redeemed, shall be cancelled. In addition, the company agrees to establish a sinking fund, so long as any of the 3 per cent series bonds are still outstanding, which shall retire annually not less than 2 per cent of any other bond series which may be issued.

Additional debt may be created during the life of the first mortgage 3's but not in excess of \$100,000,000 at any one time. Among the covenants governing such possible additional debt are clauses which prevent the issuance of bonds for the purposes of acquiring the common stock of a company intended to become a subsidiary, if the bonds issued for that purpose exceed 75 per cent of the cost or the fair value of the stock to be acquired. New debt may be incurred for the purchase of fixed assets constructed after December 31, 1934, and no more than five years earlier than the date of issue of the intended new debt, but only to the extent of 75 per cent of the cost or purchase price of such fixed assets. Likewise with the purchase of securities of other companies, ownership and control of which is calculated to be beneficial to National Steel Corporation. No more than 75 per cent of the cost of such securities can be raised by debt flotation nor may the principal amount for this purpose exceed \$15,000,000.

Finally, despite these rigorous limitations upon new debt, no new bonds whatsoever may be issued unless consolidated net earnings, net of depreciation, and depletion but before taxes upon income, in each of two periods of twelve months occurring within the immediately preceding forty months, shall have been at least twice the annual

debt charges which would be outstanding should the additional bonds be issued.

In the early part of this century, loan covenants of this description would have seemed fantastic. Insisting that a corporation itself raise at least 25 per cent of the cost of any proposed additions, new constructions, and acquisitions makes it difficult for a debtor company to engage in the sort of plant speculation which was common in the late 'twenties.

Dividend payments are restricted as long as any of National Steel's first mortgage 3's of '65 are outstanding. Cash dividends may not be paid on the common stock, nor may the company purchase or retire any common stock, if the monies involved when added to common dividends paid since the end of 1930, plus the cost of purchase by the company of its own common stock, exceed by \$40,000,000 the total net surplus since December 31, 1930. Since the company's earned surplus increased by \$40,000,000, between 1940 and 1946 alone, this latter clause is now of little significance. Its importance lies in its recognition that dividends should be proportioned not only to the current earnings and current financial condition of a company but also to longer range money needs.

In short, industrial banking practices now reflect a conservative appraisal of the long-term business outlook and recognize the need to deter even the finest of corporation executives from engaging, with borrowed money, in speculative practices or unwise disbursements. Banking, in these instances, has become banking in the proper sense of the term. Consequently, we have now what was lacking in years past: an objective standard whereby to measure

the soundness of a management's thinking and practices regarding the use of borrowed funds.

An Example of Possibly Unsound Modern Practice

We have considerable fears as to the financial future of one leading corporation which has borrowed money on terms which the future may show to have been unsound in relation to the outlook for the industry. At last report the company had outstanding \$21,000,000 of serial notes out of a total negotiated credit of \$25,000,000. This \$21,000,000 of outstanding promissory notes bears $1\frac{1}{2}$ per cent interest, plus a commitment fee of $\frac{1}{4}$ of 1 per cent on the unused \$4,000,000 of the credit. The credit expires on June 30, 1949, after which date any or all of the amount borrowed may be converted into term loans at $1\frac{3}{4}$ per cent, 32 per cent of the total amount borrowed to mature on each July 1 of 1950 and 1951 and the balance on July 1, 1952.

Under the loan agreement the company must maintain unconsolidated net working capital equal to \$40,000,000 or to the amount borrowed plus \$20,000,000 of already outstanding 2 per cent debentures which mature in 1956.

The company's 1948 annual report showed it to have working capital of approximately \$58,500,000, of which \$49,800,000 consists of inventory. If it be presumed that the amount of serial notes outstanding will not increase beyond the \$21,000,000 figure of 1948, the company must repay this debt at the following rate: \$6,720,000 in 1950; \$6,720,000 in 1951; \$7,560,000 in 1952. That is, after dividends and business disbursements the company will need to accumulate \$21,000,000 from retained earnings

over the thirty-six months from July 1, 1949, to July 1, 1952. The company must also raise out of retained earnings \$20,000,000 to meet maturity date on its debenture 2's. Alternatively, it will have to resort to refinancing its long-term debt in a period when the business atmosphere may be much less favorable than it has been over the past few years.

In one respect, the position of this company is reminiscent of the 1919-1921 experiences of the two companies previously cited. After the lean years of the early thirties, the company entered in 1936 upon that short-lived cycle which so many manufacturers mistook for a restoration of normality—and by normality they meant the earning power of the late 1920's. In the two years 1936-1937 the company earned approximately \$20,000,000. The whole of this amount was paid out to stockholders in the form of dividends. It is true that \$11,750,000 of the distribution consisted of a dividend paid in preferred stock rather than in cash. This issue, however, was redeemed at par plus accrued dividends in November, 1939. The net result was equivalent to disbursement of the company's entire earnings for 1936 and 1937.

It is surely a matter for comment when a management distributes in two years the equivalent of the company's entire earnings and nine years later has to go into the money market to borrow an amount exactly equal to this exorbitant distribution. The mildest criticism that can be leveled at this type of financial operation is that it fails to provide for the possible future money needs of the corporation. When to this is added the fact that this management has borrowed \$20,000,000 repayable in ten years but has

no fixed sinking fund to ensure periodic retirement of the loan, one must conclude that no serious consideration is being given to the sort of economic difficulties which might soon beset the American economy.

Even two consecutive years of poor business could hurt this company seriously. No provision seems to be being made for this sort of contingency. Instead, the corporation, which earned approximately \$13,800,000 in 1948 and retained \$8,125,000 after dividends, appears to believe that at least equally sizable surpluses will be enjoyed in each of the next eight years.

If the company's judgment should prove faulty, if from any cause whatever earnings should decline below an average of about \$12,000,000 per year during 1949-1956 inclusive—which would be \$5,000,000 per year more than the company earned on the average from 1935 to 1939—then even the \$2 dividend rate which prevailed from 1938 to 1940 cannot be paid. It cannot be paid, that is, if the company really plans to retire its serial notes and funded debt by the time they fall due.

If the company does not plan to retire its debt, if it plans instead to extend the life of its loans by acceding to an increased coupon rate, then the stockholders are left at the mercy of the future and unpredictable conditions of the money market. In any case, a management which plans to operate on the basis of perpetual debt is bound to encounter difficulties at some time. Sound financial opinion must frown upon such conduct.

The only apparent alternative is to transform the long-term and short-term debt into a new combination of preferred stock and funded debt. If this policy should be

adopted—and serious thought is being given by the management to refinancing in this way—the upshot of a startlingly large expansion program will be to place the common stock in a junior—and a questionable—position.

Logic would suggest that an issue of cumulative preferred stock equivalent in face amount to the short term debt is in the offing. Extension of that logic would suggest that the whole of the debt, long-term and short-term, may ultimately be cleared off by a final issue of cumulative, convertible preferred stock with the implicit threat of dilution of the existing common equity. Only the most fortunate combination of circumstances, it would seem, can preserve the present common stock from gross dilution of its worth.

VII

Unity of Command

EXCELLENT management demands that men work together in harmony, free from strains and serious friction, each pursuing his own special task but conscious that he is participating in a joint endeavor with men whom he respects and likes. Banded together for a common purpose, men realize potentialities within themselves quite impossible of development by individual effort alone. A cooperative spirit, a sense of association with one's fellow men for a mutual purpose, has inspired every business organization that has ever made a lasting impression upon the economic world.

Whether or not that spirit of unity is present in an organization can be detected immediately by the trained observer. The warmth with which department heads greet each other, question each other, and dovetail without reluctance at executive conferences, convey an unmistakable impression. The mutuality can be sensed even when the members of the management are not conscious of it. They themselves create it automatically, unconsciously, out of their own good will towards each other.

This friendliness among business associates in corporations so fortunate as to possess true unity of command is a natural result of the proper men being gathered together under the leadership of some one man of deep understanding and firm will.

Lasting benefits cannot come from unity of command which rests on any other basis. Unity of course, can be achieved in several other ways. The important question is, which produces the most lasting results?

It may perhaps seem quite the wrong place, when discussing the practical, efficient business organization, to speak of affection and compassion. If to speak in these terms does seem strange, it is so only because the reader has forgotten that corporations are human entities as well as legal ones. All the possibilities of mutuality which exist in every form of human association are latent in the corporate structure, as is the possibility of envy, malice, and fear. In the intercourse between management and workmen, the public sees, by the concrete results achieved, whether trust or distrust is the dominant mood. But in the inner recesses of the corporation, within the management group itself, either of those same factors can be present without the public ever being aware. There can be understanding and esteem among department heads and between themselves and their chief, or there can be fear, perhaps mixed with admiration, inspired by a forceful personality who thrusts every man with whom he associates into subordination.

Which of these two paths a corporation follows in achieving full integration of its management group matters enormously. The company whose chief executive is

feared by his colleagues often achieves just as large immediate results as does the company in which the dominance of a personality is tempered with humility. Yet the organization based on fear is building nothing for the future. When the powerful cause of that fear vanishes from the scene, he takes with him the fear he has generated and which has been the secret of his organizing success. By contrast, the company whose leader understands his fellow men, and sees their shortcomings paralleled by his own, stands on bedrock.

That is what Andrew Carnegie meant when he said, "Take away our factories, our trade, our avenues of transportation, our money, but leave me our organization and in four years I will have reestablished myself."

When he referred to "our organization," Andrew Carnegie did not mean the formal corporate structure which he controlled but the association for a common purpose of men who loved him, worked with him, and believed as he did that production of steel was an ideal worthy of pursuing mightily. Carnegie failed totally to impart this same spirit of affection to his thousands of workpeople. In that he proved weak. Or perhaps, in that era of America's great industrial revolution, it was inevitable that the leaders of the ongoing social change must necessarily have earned hatred as have most social innovators in their day. However that may be, Carnegie was loved by those who worked with him closely. They would have followed him into penury and hardship and out of the secure social positions which they and he had won for themselves. They would have followed him, wherever he would have led, as

faithfully as Abraham Lincoln's intimates stood by him in his days of doubt.

That is what Carnegie meant by "our organization." A body of men consciously following a leader but doing it out of love for him, not merely out of self-interest, is the perfect expression of unity within the corporation as it is within the inspired army. Given that spirit, no ordinary obstacles can prevent the group from advancing its purpose. Once that spirit has come into being, its stamp upon the corporation is not only unmistakable but almost in-eradicable.

The kind of man capable of achieving such unity of command must be a man of judgment yet need not be shrewd. Smartness and shrewdness have their place in the world of business but they awaken distrust. Breadth of vision and breadth of understanding will achieve results which shrewdness alone cannot produce. But how does one know which business leaders possess these qualities? How can the public possibly know that such men as Charles R. Hook, president of Armco, Inc., Charles E. Wilson, president of General Electric Company, or General Wood, president of Sears Roebuck, are loved by their associates for their magnanimity? For that matter, how can they know that the president of one internationally famous company, a man whom leaders of organized labor speak of as possessing presence and dignity, is feared by all his colleagues and despised by many of them?

The public cannot know. This knowledge cannot be gained objectively. Knowledge of just how these leaders lead can be earned only by knowing them personally and

by knowing their associates and gaining the feel of the human relations within the management group.

The true leader of the lastingly successful corporation must be fair and honorable in any judgment he arrives at. Even within the most harmonious group of men bickerings and causes for serious dispute must sometimes arise. The subordinate officers of our corporations are themselves possessed of qualities of leadership. It is impossible, regardless of their admiration for each other, for men of this stamp working together in close intimacy to avoid subjecting each other to strain. In dissolving such strains and in resolving the disputes out of which they arise, the chief executive of the management group must display intuition regarding the human factors in the situation. Ability to separate those elements which arise out of the personalities involved and to isolate them from the purely technical aspects of business problems can be possessed only by a man deeply interested in human beings as human beings and not merely as technicians at his beck and call.

Such men are rare. Corporations led by them are invariably successful. They do not encounter the distressing turmoils which have beset many companies in past years. They seldom lose from the organization those capable men who find in their work their fullest possible self-expression. In the former factor lies the explanation for much of the immediate success achieved by our better business leaders shortly following their assumption of office. In the latter lies the cause of the continued success which the companies enjoy even after these leaders have retired or have passed away. For a company develops a character just as does an individual. It grows in certain

ways, acquires habits, and develops conditioned reflexes. Certain types of men are attracted towards a company because of its peculiar qualities, just as they are attracted towards individuals. The atmosphere may outlive the man who creates it. The company tends to assume a form which endures for many years.

The Breakdown of Unity

The management group represents a family in many respects. As in family life the relationships between the most cordially friendly of corporate officers is at times colored by petty jealousies, rivalries, and all the ordinary causes of friction within families. Again as in family life, there is required an unquestioned fount of authority to prevent these frictions from developing into something more serious. Given a strong personality, sufficiently sensitive to the whims and foibles of his colleagues, and sufficiently aware that the health of the enterprise is of more moment than his own personal wish for power, the management group has an excellent chance to operate as a team. If frictions go unrestrained and no character strong and wise enough to hold them in check then occupies the post of chief executive, the management can quickly fall apart. The spirit of teamwork may die if the new chief executive proves unworthy of commanding or unable to command the love of his subordinate officers. Instead of continuing to fit together harmoniously, the management may, over a period of time, divide into groups. Instances are not unknown of its becoming completely atomized.

So far as the quality of management goes, it does not in the least matter which one of several causes may have led

to the breakdown of the team spirit within the corporation; once corporation politics develop, good management is no longer possible.

Usually it is outsiders who first perceive that politics are developing within a company. Perhaps it is the complete dispassionateness with which outsiders observe a management that enables them to sense the drift more quickly than do the men involved. The company's lawyers, accountants, and advertising agencies are among the first to sense the threat of such ruptures. To top executives, therefore, the impartial and unbiased viewpoints of such men as to the general trend within the management group may be of unusual importance and are at all times worthy of note.

The loss of team spirit becomes apparent to outside observers even although men close to the scene may think that the problem is transitory. When the team spirit goes, serious managerial disturbances must occur before it can be restored. The polarity of separate interests can then be resolved only by eliminating from the management group one of the contending parties. After this has occurred—and only after it has occurred—does some strong personality perhaps assume leadership, surround himself with men capable of implementing the general policies he initiates, and rebuild the management spirit out of division into unity.

Most corporations pass through this phase at some time in their history. The ousting of Durant from General Motors is a specific example. What follows may prove corrective, as did the reintroduction of Colgate family control into the Colgate Palmolive Peet Co. during the

1933 depression. Whether it does or does not prove corrective is secondary to the point that, during the period when corporation politics make themselves felt, management is disrupted.

If such politics arise during the early life of a corporation, the firm often goes out of business. This need not involve serious loss but merely the foregoing of potential profits. For the corporation in its early days is closer in spirit to a partnership than it can possibly be once it has become institutionally established. As in all partnerships and semi-partnerships, basic disagreements lead to severance of the business relationship.

But once a corporation has grown to the status of an institution, whether of local or national importance, the growth of politics within the management is a much more serious matter. It is more serious because such internal politics usually coincide with disputes over, and their outcome determines, the entire future direction of the firm.

Hardly a single one of our major companies has not passed through this stage in its evolution. At some point or other, the average firm has had to decide what role it is going to play in the economy, what its specific function is going to be, and in what manner it is going to perform that function. That is the definitive stage of development of a company's institutional character.

Thus, the ultimate managerial worth of an enterprise is usually determined in what appears to be a period of managerial chaos. That a management may be involved in a serious internal conflict is merely a temporary phase. Who wins the fight, what ideas these men have about

business organization, what role they want the individual corporation to play in the social life of the nation, are questions which can be answered only after the political phase has become immediately past history.

Whether a corporation will become well managed or will continue to be well managed, cannot be determined at the moment of its major internal contest. That moment is so critical in its life that all judgment regarding quality of management must be suspended. It is as though the corporation were awaiting rebirth in one or another form.

This is true only if the struggle has come about because the evolution of the corporation has led to an unavoidable need to choose between diametrically opposed policies. If the struggle is over personalities and does not reflect evolutionary pressures upon the corporation itself, the problem is likely to be of long duration. Management difficulties will then probably persist for a considerable time.

Nepotism as a Cause of Disunity

Among the commonest nonevolutionary causes for the growth of corporation disunity is the bid for succession to top leadership. Unfortunately, the past few years have seen a trend towards sons succeeding fathers in positions of major responsibility in certain corporations, regardless of the fitness of the younger men for these posts. Not only has this led to serious disputes in more than one organization, it has also emphasized one of the basic defects in the business organization of our present period.

As the joint-stock corporation has replaced the family enterprise, the general trend has been towards elimination of active direction by family groups and towards profes-

sional management. There is growing evidence that some of the professional managements which succeeded original owner-managers are themselves developing a dynastic complex. In at least one nationally known corporation, the president, a man of sixty-seven and as fine an industrial executive as could be found, has made it very clear that he intends his son to succeed him as chief executive. Throughout the past eight years this intention has been apparent to the entire executive group including the son himself. The son is unquestionably possessed of business ability. So far, however, he has done nothing to show himself capable of directing the central affairs of so important an enterprise.

In fact, his status as heir apparent has discouraged development of his innate business faculties. Being groomed for the presidency and working far too closely with his father over a period of years, he has been deprived of the opportunity to develop his talents in his own way.

In this case, flagrant nepotism is already hurting the organization. The president knows that one of the vice-presidents has expected to assume top control should the present chief executive retire. This vice-president enjoys a following in the organization, has earned the confidence of the board of directors and might—if he wished to precipitate an open fight—be able to thwart the succession plans of the older man.

Two years ago he could have done so. Some of the more intricate functions of the corporation had enlarged in importance during the war. The vice-president concentrated his own activities throughout the war period upon this aspect of the corporation's work. He built new plants, trans-

formed old processes, and undertook mass production of items imperatively needed by the government and of whose production the firm had had little previous experience. So well did he organize a highly specialized team of unusual men that he met all the production requirements of the government and finally did so at 40 per cent of originally estimated cost. This contribution to the war effort was so substantial that the company received unusually favorable treatment during renegotiation of war contracts. Even so, it was at the suggestion of this vice-president that the corporation made a large cash refund to the United States beyond that required by renegotiation settlements. His viewpoint was that the profits upon this wartime operation, even after the voluntary refund, were ample. He insisted that if the company wanted more earnings from this operation, they must be achieved through further economies in production.

The company's president has never been jealous of the successes of this vice-president. On the contrary, he values him as a member of the organization and has made clear to the board that credit for the company's wartime achievements belongs mainly to this man. However, this has not weakened his determination to have his son succeed him as head of the company.

Two years ago the president had planned to retire. At that time, however, the war production record of the vice-president so far overshadowed the very junior achievements of the chief executive's son that the acquiescence of the board in this piece of nepotism was more than a little in doubt. The president therefore withheld his decision to retire. He has spent the last two years weeding out board

members antagonistic to his son's promotion. The general air among the company's officers, as a result, is that a nasty management fight might break out at any time.

What of the vice-president? He has no wish to resign his position and has apparently no intention of putting up a strong fight for the presidency. But his desires do not control the situation any more than mere wishes control the internal relationships of any organization. Regardless of his wishes, it would be impossible for him to work well under a younger man in whose judgment he has little confidence. When the son succeeds the father as president, as now seems certain to occur, the vice-president will probably be lost to the organization. He has no wish to resign. But corporation politics brought to this pitch override personal desires. They create situations, atmospheres, and moods which make it impossible for a man to continue to do his work properly. Moreover, as in this concrete case, no one can foretell how a new president might act if he were afraid that an older and more capable man in the organization might someday make a bid to supplant him.

The introduction of nepotism into this situation is the point at which corporation politics have developed. It has led not to an internal conflict but to the possibility that such a conflict might flare up. There is now a state of uneasiness throughout the entire managerial group. An elderly man has been deterred from resigning although the state of his own health and the company's general welfare make his resignation desirable. A man of unusual executive powers has been prevented from assuming a position of leadership undoubtedly his by right of merit. Instead of the harmony and integration which once banded

the directors and officers of this corporation into a highly effective team, division has been introduced. The enterprise is still flourishing but it now threatens to crack at the seams.

Not even the legal right of ownership exceeds in authority the claim of ability to express itself. The corporation is not a playground for rich men's sons. Its official titles should not be inheritable like those of an aristocracy. The corporation is a tool, an instrument. It requires skilled hands to operate it. The best of our companies are acutely aware that nepotism tends to sever ability from power.

General Foods Corporation, for example, has no formal constitutional rule banning employment within the organization of the close relatives of any officer. The policy followed, however, is that no officer may employ any close relative in his own division or in a position over which he himself exercises supervision. This means, in General Foods Corporation, that since the president oversees the entire enterprise, not a single one of his close relatives may be employed by the organization during his period of office.

We cannot too vigorously applaud such regulations and unwritten laws. Where nepotism is rendered impossible from the start, the emphasis must thereafter be upon efficiency and ability. Yet one can understand from whence this tendency towards nepotism stems. In the days of the privately owned company, and even in the days of the joint stock enterprise but of low inheritance taxes, a successful man could will his family substantial blocks of stock, the income from which enabled them to live more than comfortably. Those days are past. Steeply graduated income

taxes and inheritance duties, made necessary by our enormous national debt and by the drain of modern war upon the public purse, have left the professional executive unable to make the same provision for his children as was possible even one generation ago.

We are not deploring the fact. We are simply stating it. But having stated it, we must examine some of its consequences. Foremost among them are the different ways in which men now try to provide for their children. Whereas, two generations ago, corporation officers could leave their families at least a competence, today they can often leave them little more than a guaranteed job at a good salary. The obvious result is that many executives try to secure the future of their families through frank nepotism.

A corporation in which such a situation arises may survive the worst effects of it. It can seldom be the wonderfully managed organization which we have the right to demand that every firm should be. By permitting nepotism it belies both the social purpose and the social value of the corporation. It reflects the view that a microscopically small proportion of those embraced within the corporate structure have sole right to its ultimate benefits.

This is not to suggest that the sons of businessmen need prove any less efficient than their fathers. It is more a question of principle than of unfortunate consequence. In any case, one could not overlook those instances of continued family control, of both privately and publicly owned corporations, which have led to remarkable success. The du Ponts are a case in point, as is the Aluminum Company of America. In both these companies family influence continues strong within the corporation and has worked not

to the detriment of the managerial group but to continued harmony within it. Such examples are not even rare. They are fairly common. However, they occur most frequently in those companies in which the family influence rests upon substantial investment interest. Far less frequently do they work out well in corporations in which the top executives own little stock. There, the natural basis for expectation of continued control by a family group does not exist.

For that matter, we cannot agree that because a man is the son of a business leader he ought to be excluded from holding corporate office. Instead, he should be excluded from official position in the company under his father's control. He should work in some other organization where, unsheltered, he could grow polished in the rough grind of a competitive career and could develop his own capacities and his own talents in his own way.

If it were an inflexible rule of every corporation that no close relative of any executive officer might, during the period of office of that executive, be appointed to a position of even junior responsibility, a lot of companies would be much better served than they are today. The Container Corporation of America, under the splendid leadership of Mr. Walter Paepke, is to be complimented on its rule that no two members of a family may be employed in managerial positions at the same time.

Again we state that if the corporation, the purely voluntary association of owners of capital for a specific economic purpose, is to persist, then rights of succession to office in publicly owned enterprises must be stamped out completely. Entirely apart from the social injustice implicit in the inheritance of power, there are practical considerations which should command the most serious thought. The

time is past when the internal operations of the corporation could be regarded as a matter of no public concern. The whole trend of social thought is towards a fuller, and more fully expressed, realization of social responsibility on the part of our economic institutions. Those among them that violate this general social drift cannot expect to endure. Those that recognize it and not only adapt themselves but deliberately increase both the degree and the extent of their social usefulness may hope to flourish.

In essence, nepotism denies this. It denies any sort of social responsibility on the part of the private corporation. It denies that the very ample rewards enjoyed by corporate officers need ever be proportioned to the actual value of their work. If this were to become general, it could lead to the disappearance of the institution. For nepotism places insurmountable obstacles between ability and responsibility.

Over this issue the future will permit no possible compromise. Perfection cannot be demanded in any branch of human endeavor, but from a well-paid and highly regarded professional cadre of the population a level of excellence in performance superior to that of the mass of the population is rightfully expected. If it is not obtained, the rewards paid our professional business administrators are not warranted. If it is obtainable—and of course it is—then no private considerations of family or of affection should prevent its realization.

The Scarcity of Executive Material

Managerial personnel are among the working population of the nation. In terms of the continuing economic process, they are inseparable from the man at the lathe, the

digger of ditches, or the salesman out on the road. Their work is that of direction of an industrial process in which multitudes of people play equally significant parts.

The payment received by industrial executives is quite literally the "wages of superintendence" conceived of by the classical economists. It has nothing in common with the rentier incomes of stockholders and mortgagees. Members of the managements may likewise be owners of industrial equities. Their total incomes will then consist of both wages of superintendence and rentier receipts. We are concerned with them only in the former capacity. Their work is well paid, the payment corresponding less to the degree of responsibility which they must exercise than to the scarcity of fully trained men of managerial ability.

The consequence of this is that the best among the budding executives gravitate toward the best managed companies. It is in such corporations that their personal qualities receive fullest compensation, not only in money but in association with men of top ability from whom they can learn. As a result, the well-managed corporations, continuously attracting towards themselves the best of the managerial brains, stand head and shoulders above their competitors in terms of management and therefore of achievement. A small number of companies, probably less than five hundred in number, attracts the finest types of executives, leaving outside their ranks many thousands of corporations led by management groups among whom there are men of genius but whose potential is reduced by the necessary mediocrity of a majority of their colleagues.

One might shrug off this fact and say that it has been characteristic of every form of human association through-

out history. We prefer not to dismiss it so lightly. Its implications for the conduct of private corporations seem worthy of examination. Since the demand for qualified executive personnel exceeds the supply, every corporation concerned even with maintaining, let alone improving, its managerial quality must be prepared to compete for this limited supply of human material. A corporation policy which reduces a firm's power to draw to itself the best type of future executive not only is injurious to the corporation but shows a lack of realization of elementary facts. It might not lead to any particular difficulties over a short term but it tends towards ultimate managerial weakness. Companies with wiser hiring policies enjoy that splendid lift which comes from building a real reservoir of managerial personnel. They can impart to younger men the spirit of teamwork which their seniors have gained through years of long association with each other. In competitive business terms, the corporation which does not achieve this soon finds its direction unsure and its progress uncertain.

Teamworkers and Individualists

The well-managed smaller corporation is seldom characterized by a true spirit of teamwork. This is no contradiction of our opinion that teamwork is the essence of good management. It is plain recognition of the fact that many men of the highest executive ability are not capable of a team spirit. Domineering, possessed of prodigious physical energy, impatient of the shortcomings of others, and often blind to their own, the leaders of many smaller corporations drive their junior executives to efforts which they would not otherwise undertake. During the lifetime of

such business leaders, these corporations flourish. Vigor, boldness, imagination, and personal dominance can drive a corporation very far in the competitive race.

But when all is said and done, every such company encounters difficulties when the strong controlling hand is removed. There is plenty of room in the business world for strong individualists of the type we describe. When they retire or die, however, they may leave behind them a splendid business built through their own efforts but they also leave behind a considerable management problem. Since it is usually in the small company that power tends to be concentrated in the hands of a single individual, it is a natural corollary that the management problem in a smaller company upon the death of a chief executive is usually more serious than in a larger organization. The one-man company, precisely because it is a one-man company, makes little effort to build up a reservoir of executive trainees. Whatever other executives there may be in such a corporation are usually mirrors of the dominant leader's thinking. Once he goes, that thinking goes and what is left may prove a very empty shell.

VIII

Convertible Bonds and Convertible Preferred Stocks as an Index of Management

A COMPANY whose preferred stock or bonds are convertible into common stock usually is, or has been until recently, a badly managed enterprise.

This judgment cannot be applied to all companies without distinction. One must exclude from this criticism the largest aggregation of productively employed capital in the world, American Telephone and Telegraph Company of New York. Nevertheless, in most instances, a company which issues convertible bonds or convertible preferred stock does so because its credit rating is so low that a special allure must be offered to attract to it the investment money needed for its current purposes.

It is, therefore, the underwriter, not the corporation, who usually insists upon convertibility clauses in new offerings. He does so because he believes that he would not have a reasonable chance of obtaining a market for the securities he is underwriting in the absence of such an attraction.

Insistence upon convertibility is thus presumptive evidence that underwriters have insufficient faith in the proposed bonds or preferred stock to accept responsibility for them on ordinary terms. Perhaps the company's earning power fluctuates violently, showing heavy losses during periods of recession and correspondingly high earnings on the upswing. Aggregate net earnings over a span of ten or fifteen years may prove no less than those of a more stable enterprise. But the factor of stability being absent, and the possible duration of recessions being unknowable, investment money tends to steer away from the common stocks of companies whose earnings fluctuate so violently.

In financial jargon, one terms such companies "highly cyclical." As an investment medium they are considered rank speculations.

The convertibility feature recognizes this fact and offers the protection of a prior lien or a preferred claim, but combines with this the speculative appeal of rapidly rising earnings and possible appreciation of common stock values during times of high business activity and bull markets.

This would seem to be an ideal way to finance a corporation's expansion plans. It offers the public a speculative investment medium which at the same time possesses the conservative virtues of a prior claim on assets and the cumulative features of a fixed interest or dividend requirement. However, it threatens existing common stockholders with dilution through conversion of the convertible prior securities into new common stock sharing equally with the presently outstanding stock in earnings and dividend distributions.

Moreover, should the market valuation of the common

stock decline, as happens to all stocks at some time or other, the convertible bond tends to decline likewise. Those investors who have bought the security subsequent to issue date, whose purchase has been made from some prior holder of the bond or preferred stock at a price reflecting imminent conversion, might suffer an appreciable loss if they should be compelled to turn their investment into cash.

Granted that the extent of the loss would be governed by the quality of the claim and would be unlikely in the average corporation to result in sale below par, the loss could nevertheless prove substantial. Between a probable lower limit close to parity and an upper limit of equivalence with its converted value into common stock, the convertible issue is essentially a speculative investment medium.

Purchasers of bonds and preferred stocks usually make their investments with the intention of holding them for income over the long term. The convertible issue does not possess this characteristic. It is issued with the precise intention of forcing conversion into common stock when the state of the markets makes conversion feasible. The possibility is ever present of the management calling the entire issue when the ratio of common to convertible bond or preferred would make it momentarily more profitable for the investor to accept conversion instead of receiving cash for his holdings.

It may be argued that no compulsion is exercised upon anyone to convert his bonds into common stocks; nor, once the intention to call the issue is publicly known, for anyone to purchase the bonds with the intention of converting

them. The argument is unanswerable that no loss is sustained by original purchasers of the bond who fail to avail themselves of the profits realizable through conversion when markets are advantageous. All they can lose is a profit opportunity quite freely offered to them.

This is true, but there is another side to the picture. The management and the underwriters when issuing convertible bonds or preferred stocks do so with the knowledge that the company plans to convert those issues into common when markets prove propitious. They thus gamble upon an ultimate rise in the market or a basic improvement in the company's internal condition, neither of which need materialize. Let us assume that they do materialize. The management is still speculating with borrowed funds upon the movement of market averages. It is taking a gamble that stocks in general and the common stock of the company in particular will appreciate sufficiently for it to be able to compel reluctant money to convert into new common stock because of a momentary opportunity for profits.

The word "momentary" is the operative one. Just as markets in securities tend over extensive periods of time to rise, so do they fall, often grievously and suddenly. The profit opportunity occasionally offered holders of convertible bonds or preferred stock depends upon conversion into common stock and then into cash through resale while markets are still good.

In the majority of cases, this is the precise reasoning of managements who resort to convertibility to induce a purchase of their issues. They may be giving sound value for money in the bonds or preferred stocks they offer for pur-

chase. But beyond that value lies an appeal to gambling instincts. It is as though they had said "Buy these issues from us because, should markets rise, there is usually somebody fool enough to buy common stock from you at prices which you and I both consider unwarranted. Invest your money this way and you will enjoy all the protection your investment deserves plus the chance to pick the pocket of some man less astute than yourself."

Is this harsh judgment too harsh? Possibly, but it is none the less justified. For if investors are reluctant at any particular moment to make original investment in the common stocks or the straight preferreds of a particular corporation, and if underwriters are unwilling to assume responsibility for a straight issue of such stocks, it is because they do not regard the investment as well secured or as sufficiently attractive compared to other offerings on the open market. A mere move upwards in stock market averages effects no change in the intrinsic merits of a stated investment. It reflects extrinsic factors which affect the securities of well managed and badly managed companies alike.

The International Paper Company

Two circumstances alone justify the issuance of convertible preferred stocks and bonds. The first is that developments within the corporation are in such marked contrast with the company's past history as to seem not quite credible to the average investor.

The International Paper Company is a case in point. Its earnings history, from its abortive attempt in 1899 to create a monopoly in the newsprint industry, had, until very re-

cent years, been dismal indeed. Attempts to appraise the situation for investment purpose led one through a long historical maze of operating losses, reorganizations, public utilities, holding companies, subsidiaries, plans for the exchange of stock, rights to acquire common stock, convertibility clauses, arrears of preferred dividends, and millions of shares of common held in treasury for conversion purposes.

To say the least, it was an untidy mess, hardly calculated to inspire the investing public with confidence that the future would not be the same as the past. But the company, under its present excellent management, had turned the corner. The emphasis of its production was away from the profitless lines of its past and towards dominance in the field of kraft, the major growth factor in the paper industry.

But how could the investing public and the company's stockholders be made aware, in advance of the realization of the new earnings potential, that so profound a change had occurred? There was no way whereby the management, especially in these days of S.E.C. regulations, could impart to the public the significance of the revolution which was taking place within the company.

Moreover, the company needed to simplify its capital structure. As of the end of 1936, capitalization of International Paper and Power Company, the then parent organization, consisted of \$80,730,000 of funded debt; \$15,833,000 of subsidiaries' preferred and common stocks; \$90,986,000 of cumulative 7 per cent preferred stock; \$363,300 of cumulative 6 per cent preferred stock; 832,596 shares of Class A common stock; 821,805 shares of Class B common stock; 2,122,389 of Class C common stock; and a

deficit of \$19,734,020 in the earned surplus account. Simplification was urgently needed!

On September 17, 1937, a recapitalization plan was put into effect. For each share of 7 per cent cumulative preferred plus its dividend arrears of \$39.96 there was exchanged one share of 5 per cent cumulative convertible preferred and one share of new common stock of \$15 par. For each share of 6 per cent cumulative preferred with its accumulation of \$37.00 there was exchanged one share of 5 per cent cumulative convertible preferred and $15/20$ of a share of common. For each share of Class A common there was exchanged $8/20$ of a share of common stock and a warrant to buy $24/40$ of a share of common stock. For each share of Class B common there was exchanged $6/20$ of a share of common plus a warrant to buy $18/40$ of a share of common. For each share of Class C common there was exchanged $3/20$ of a share of common and warrants to buy $9/40$ of a share of common stock.

This recapitalization itself was complicated enough. In that respect it merely reflected the highly complex nature of the company's financial structure prior to the recapitalization. The convertibility feature in the new 5 per cent preferred stock likewise reflected the sorry past history of the corporation. It is doubtful if the recapitalization could have been effected at all unless the then holders of preferred stock had been offered such a speculative inducement to cooperate.

The new preferred stock was convertible into common at \$40 per share while the par value of the new common was only \$15 per share. In other words, the common must

appreciate to $2\frac{2}{3}$ times parity before the convertibility feature could become operative.

At first there was little public interest in the company's new issues. The sudden collapse in the price of paper products in 1937-38 and the apparent recurrence of the company's historic problems, did not then induce investors to regard the company with any favor. However, substantial earnings on the common stock during the years 1940 to 1946, culminating in per share earning of \$8.50 in the latter year, plus a bull market in stocks, enabled the common stock to reach prices of $48\frac{3}{4}$ in 1945 and $55\frac{1}{2}$ in 1946. The preferred reached a price of \$123 in 1945, equal to a conversion price, in terms of common stock, of approximately \$49 per share. In 1946, the preferred was called for retirement at \$105 per share plus accrued dividends. Each share could be exchanged for one new share of \$4 cumulative, nonconvertible preferred plus common stock, or be converted directly into common at $2\frac{1}{2}$ shares of common for each share of \$5 preferred.

Considerable conversion into common thereupon occurred. The total amount of preferred outstanding—which now consists exclusively of the new nonconvertible preferred—was reduced from \$92,496,000 to \$23,000,000.

Despite the convertible nature of the \$5 preferred stock, no such reduction in the amount of preferred stock outstanding could have taken place unless the company's record over recent years had been in flat contradiction to its dismal experience in earlier periods. The common stock could not have risen sufficiently on the market, in the absence of an inflation in security values such as took place in the late twenties, unless the company's earning power

under the new management had risen steadily. In the case of International Paper Company, such an increase did take place, with the result that the funded debt, which had amounted to almost \$81,000,000 in 1936, declined to \$18,120,000 in 1946, although this was partly due to the sale of Newfoundland properties, somewhat redundant in view of the company's new emphasis upon operations in southern woodlands. Earned surplus account in 1946 amounted to almost \$59,000,000 compared with a deficit of \$20,000,000 ten years earlier, or to an increase of \$79,000,000 in net worth from undistributed earnings.

Significantly, the management of International Paper Company replaced the company's convertible preferred issue with a cumulative but nonconvertible one as soon as the improved credit and investment rating of the company made this possible. It had been compelled to resort to convertibility of its preferred stock when recapitalizing only because the past history of the enterprise did not then justify straight preferred investment. Once the qualities inherent in the reconstructed company were fully known, the need to employ such a device no longer existed.

American Telephone and Telegraph Company

The second and only other circumstance which can justify convertible bonds or preferred stocks is that the money needs of the issuing corporation are beyond the capacity of the market for new common stocks to digest in one issuing period. The largest American corporation so situated is the American Telephone and Telegraph Company.

In discussing this company and its 1946 issue of fifteen-

year $2\frac{3}{4}$ per cent convertible debentures, we shall once more involve ourselves in some discussion of dividend policies. This is unavoidable because dividend policies have an important effect upon the market for a company's securities.

In order that the problem facing American Telephone be clearly understood let us examine its capitalization as of June 30, 1946, some months prior to the issuance of its $2\frac{3}{4}$ per cent convertible debentures. At that time the parent company had outstanding \$630,248,600 of funded debt, of which \$65,248,600 consisted of fifteen-year 3 per cent convertible debentures due September 1, 1956. In addition, the company sold in July, 1946, \$125,000,000 of forty-year $2\frac{5}{8}$ per cent debentures, raising the total funded debt of the parent organization to more than \$755,000,000. Common stock outstanding totalled 20,370,157 shares with a par value of \$2,037,015,700.

The sums involved are prodigious. Even the \$125,000,000 of money borrowed in 1946 did not meet the company's cash requirements in full. A brief survey of the reasons for such an enormous need for money should prove of interest. On June 30, 1946, subsidiaries of the company had approximately 24,160,000 telephones in service representing 80 per cent of the total telephones in use in the United States. This represented an increase of 8,800,000 telephones since the end of 1938. Between December 31, 1940, and the end of 1945, approximately 5,000,000 new telephones were installed. During the first six months of 1946 there was a gain of approximately 1,700,000 telephones in service.

Shortages of manpower and materials throughout the

war had made it impossible for the company to construct the increased plant required to meet the demand for new installations. In September, 1945, over 2,000,000 unfilled applications for new installations were on file. Despite the installation of 2,300,000 new telephones in the nine months ended June 30, 1946, there were on that date 1,825,000 unfilled applications, mainly for residential service in locations where sufficient outside plant or central facilities were not then available.

Some idea of the cost of these new installations can be obtained by reviewing expenditures for new constructions over the years 1941 to 1946. They were as follows: \$420,000,000 for 1941; \$345,000,000 for 1942; \$154,000,000 for 1943; \$170,000,000 for 1944; \$255,000,000 for 1945; 1946, \$690,000,000; and 1947, \$1,185,000,000. This totals over \$3,219,000,000 spent for new constructions in seven years. It was calculated in 1946 that similar expenditures over coming years might amount to another \$2,000,000 in order that normal growth could continue, that service could be carried out satisfactorily, and that delayed plant improvements could be brought to completion.

It is obvious that any direct attempt to issue new common stock in amounts sufficient to meet money requirements of these dimensions would be futile. The new money market has never, at anytime in history, shown itself capable of absorbing common stocks in such quantities. Moreover, common stock already outstanding could be hurt seriously if an attempt to float new stock in the required quantities should prove abortive. Fiduciary responsibility towards existing stockholders forbade the taking of such a risk.

Obviously, the company could make but one of three choices: First, to finance all its money requirement by increasing the amount of straight debenture issues. From every point of view this would be undesirable. It would provide an unwarranted leverage to common stock earnings, would create an unduly top-heavy financial structure, and might make constant refinancing necessary.

The second choice would be to omit common dividends entirely until such time as the company had accumulated funds sufficient to meet all necessary expenditures no matter how large they might be. This would be more than undesirable. It would be unthinkable.

The common stock of American Telephone and Telegraph Company enjoys an investment rating comparable to that of many a bond. For Telephone to omit or to reduce its dividend would wreak such havoc in investment portfolios as could precipitate a financial panic. We can therefore consider the second choice as no choice at all but as a financial nightmare.

In practical terms, therefore, American Telephone Company in 1946 had no choice other than to issue bonds with a convertibility clause. It already had a background of financing in this manner. In 1941, it had issued \$233,584,900 of fifteen-year 3 per cent convertible debentures, due September 1, 1956. On October 10, 1946, the amount of this issue outstanding had been reduced through conversion at \$140 per share to \$56,563,200. Approximately \$177,000,000 of the bonds had been converted into common stock. The company thus knew from experience that it had every reason to hope that a second issue of convert-

ible bonds would be entirely or mainly converted into new common equity before redemption date.

The 1946 flotation consisted of \$350,377,300 of bonds of \$100 par, each bond being convertible into one share of common stock at \$150 per share. Thus, if the entire bond issue is finally converted into capital stock, 3,503,773 shares of new common stock will have been issued, netting the company an additional \$175,000,000. Should the entire bond issue be converted into common the new equity investment would exceed \$525,500,000.

Again we would state that for Telephone, or for any other corporation, to hope to go into the new money market and raise \$525,000,000 of new common stock money in one single flotation would be futile. Even if it were possible, it would leave so large an undigested mass of newly issued securities overhanging the market that the future market for new stock would be impaired.

It may perhaps be thought that the market action of a common stock should be of no concern to a management; that management should be concerned simply with giving value for money and should content itself with conducting the company's affairs so ably that the stock, left at the mercy of the public auction, can be expected to behave well. That is an oversimplification. A security in the category of American Telephone, held so widely and purchased almost entirely on the grounds of its known dividend policy, cannot be treated lightly. The credit of a corporation ought not be permitted to be impaired by unnaturally large common stock flotations with their inevitably depressing effect upon markets.

Even if the market for new common stocks was able to

absorb so enormous an issue, it is doubtful if it could do so without some bait in the form of an offering below par, which is impermissible under the laws of New York State where American Telephone and Telegraph is incorporated. It should be remembered that \$525,000,000 of new money, intended to be turned into new earning power in the form of additional facilities, could not begin its earnings cycle until actually converted into operating productive equipment. Initially, therefore, the additional common stock, amounting to a 20 per cent dilution of the preexisting common, would share not in the earnings which it might potentially generate in future years but, at the time of issue, solely in earnings already being made on admittedly insufficient facilities. The immediate consequence would be to reduce earnings per share of common to a point at which the company's traditional \$9 dividend might not be justified on the basis of current profits.

Pursuing the policy which it has followed, the management of Telephone has obviated this problem. Each \$100 of investment in bonds carries with it an interest requirement of \$2.75 per year compared with a 6 per cent yield on the common at the conversion price of \$150 per share and at the established \$9.00 dividend. Since interest is deductible from earnings for tax purposes, the actual amount of disbursement per \$100 of new investment is substantially less than one half the traditional distribution per share common.

The company has thus gained a breathing spell during which it can transform the monies it has raised into productive facilities and these in turn into new earnings. As the expansion program transforms itself into an actual

increase in income, the opportunity is presented for conversion of the bonds into new common stock harmoniously with the generation of sufficient new income to secure the company's historically normal yield upon the increased capital investment.

These companies, American Telephone and Telegraph and International Paper, epitomize the only two circumstances under which financing through convertible bonds or convertible preferred stocks can ever be warranted.

IX

Dividend Policy and Managerial Capacity

IF THE stockholder is to be regarded as sole proper beneficiary of the activities of the company of which he is part owner, then it is clear that dividend disbursements can be based upon only two considerations:

First, the corporation must decide whether large current dividends may threaten the stockholder with an ultimate loss through impairment of capital greater than the momentary benefit he receives. Second, the needs of the stockholders themselves must determine how much to distribute as dividends. Thus, if a large proportion of a company's common stock is held by individuals high in the income tax bracket, their income needs are likely to be low and dividends, according to this philosophy, must be kept down correspondingly.

This demands that we decide whose interests must be considered, that of large stockholders or of holders of odd lots. To strike a balance between the income requirements of such widely differing economic groups is impossible. Yet if the corporation be considered solely from the viewpoint of its legal proprietors, its managers must make an effective

compromise between divergent interests occupying the equal status of partial owners.

In the opinion of the author, too many corporation executives view the problem this way. In so doing, they show failure to appreciate what the corporation is, what it does, and what it is becoming.

For the corporation is merely a way of doing things. It is a means whereby the small and scattered money hoards of millions of individuals are gathered together into large aggregations capable of producing and distributing goods in quantity. To the extent that the corporation successfully performs this function, it will survive as an institution. Should it fail, it will die.

It is an historical fact that the corporation came into being and has developed into its present form because it performed its function better than any previous economic organization. The matter is a functional one, not one of social ethics. But to the extent that it is functional, all other aspects of the matters are subordinate. The special interests or needs of individuals who occupy some place in the corporate structure are inferior in importance to the functional effectiveness of the corporation itself.

What, then, is the true status of the stockholder? If the corporation will survive only should it continue to prove itself the best way of meeting society's need for expansion of the means of production, does not this leave the stockholder in a somewhat questionable position? Of course it does. It subordinates the interests of the individual partial proprietor to the larger social interests of which the corporation is the most important organic unit.

If more stockholders and managements were to reflect

upon this, one cause of friction between them would be reduced. The stockholder would appreciate that his actual position is that of residuary legatee, rather than of owner, no matter what the law may pretend. Only after all other obligations of the corporation have been met, social as well as legal, is it possible to reward him for his investment.

The stockholder, in other words, has no right to dividends prior to society's right to demand that the corporation continue to facilitate human progress. He purchases securities in the hope that dividends will be paid to him. But a hope constitutes no claim. Nor even does the fact that he may have invested his entire life's savings in the enterprise.

In what, then, lies his claim? It lies in a separate functional aspect of the matter. For unless corporations are capable of making dividend payments—and do actually make them—it will be impossible for them in future years to induce possessors of small money hoards to place them at the disposal of the social aggregations of capital which our corporations represent.

Dividends, thus, are the price paid by capitalist society for the social use of private funds. They are nonetheless a pure residual, not an obligation. The dividend fund is what is left after the corporation's own needs to accumulate monies for productive use, independently of flotations of securities or loans, have been met out of earned surplus.

In these days of high building costs—and of high living costs which have generated a demand for increased dividends—a number of corporations have had to face this reality. They have had to choose between meeting the dividend demands of stockholders or of putting aside de-

preciation funds large enough to meet the higher replacement costs of their equipment. Faced with this choice, it is usually the well-managed company which has put dividends into a secondary category and has insisted that they must not be increased, and may have to be reduced, until the cost of replacing equipment declines sufficiently for earnings as reported to correspond to economic reality and not to an accounting illusion.

In such a situation, the issue is made plain. The residuary nature of dividends is emphasized by the arbitrary deduction from earnings of an amount which the management hopes will correspond with hidden cost increases. Precisely the same effect is achieved when company treasurers insist upon establishing contingency reserves during periods when future industrial problems threaten to multiply, inventory reserves during periods of inflation, and extraordinary obsolescence reserves when competitors introduce new equipment whose competitive impact cannot yet be calculated.

None of these special deductions from income can be regarded as legitimate costs in terms of the tax laws. They are hidden earnings in the everyday use of the term. Despite this, they may actually prove insufficient to meet the contingencies against which they are intended to defend the corporation. Under such circumstances, dividends are omitted or cut drastically. Stockholders, thereupon, often accuse management of writing down earnings in order to create an excuse for omitting dividends. The potential conflict of interest between the corporation as an institution and the individual stockholder as a private person is fully manifest on such occasions.

The average stockholder usually views such arguments with suspicion. It seems to him that sophisticated discussions as to the true balance of his interests are beside the point. He asks "Has the company enough money to pay a dividend? If so, it should pay one." In doing so, he overlooks the fact that a slow wastage of assets through unwarranted distributions does not constitute a return upon capital. It is not a partial liquidation in the eyes of the law and is therefore taxable as income. If funds, likely to be needed in the future for preservation, replacement, or expansion of the capital investment, are disbursed as dividends even in part, the dividend recipients suffer a capital loss to the extent that their asset wastage is taxed as income.

The problem is frequently inverted. Some corporations have failed to make dividend payments in recent years in amounts which the company's earnings would have justified. Instead, they have employed funds available for dividends to build new plant or to buy it from others at prices which rational minds must denounce as exorbitant.

The problem thus has two aspects. Each of them arises out of the residual nature of the fund from which dividends must be paid. To make excessive dividend payments in face of rising costs or of other foreseeable drains upon company assets, constitutes failure to recognize the residual nature of net surplus. But to fail to pay out in dividends or to fail to reserve for future dividends a substantial proportion of net surplus, and to employ such monies instead in acquiring plant at prices which the future cannot possibly justify, is likewise expressive of a failure to understand the nature of this residue. For if reported earnings do not reflect the inadequacy of normal deprecia-

tion during times of inflation, neither, if plant or inventory are purchased at too high a price, does the earnings statement reflect the loss which has already been incurred.

How Much Should Be Paid in Dividends?

The Federal Tax authorities have arrogated to themselves ability to answer what the ordinary human mind cannot. Section 102 of the Federal Income Tax law claims to know precisely how much dividends a company can pay out of earnings. It demands that a corporation distribute as dividends 70 per cent of its net earnings wherever it is unable to demonstrate that such a distribution would have to be made out of funds needed for the normal conduct of the business.

The joker lies in the fact that earnings and money are not synonymous. If the entire earnings of a corporation are consistently reinvested in expanding plant, equipment, and facilities and in accumulating inventories to cope with a growing volume of business, the company might perpetually find itself short of funds out of which to pay dividends.

Even to pose the question as to how much dividend is a proper dividend is therefore absurd. There can be no arbitrary distinction between what is proper and what is improper dividend disbursement. All that can be said is that the special and separate needs of each individual corporation are the determinants of how much that corporation can afford to pay.

American Telephone's Dividend Policy

There is one circumstance, however, in which any change in the established dividend rate paid by a corpora-

tion would be both unwise and inequitable. To all intents and purposes this circumstance can apply only to American Telephone and Telegraph Company, whose money needs, as we have discussed earlier, are so prodigious as to require special treatment. It is not necessary to recapitulate what we have already said as to the convertibility feature of its last debenture flotation. The significant point is that any change in Telephone's dividend policy would have an immediate effect upon the market for its outstanding debentures and therefore upon its future capacity to raise by public subscription the funds needed to enlarge the nation's communication system.

We are here concerned solely with the functional aspects of the matter. If expansion of the nation's productive facilities is to be through public subscription, then policy changes which deter investment are socially injurious.

In the case of American Telephone Company, the conversion price of its $2\frac{3}{4}$ per cent convertible debentures induces bond purchasers to believe that, at their discretion and upon exercise of their conversion privilege, they may obtain a 6 per cent return upon their investment. It was specifically because of the prospect of an ultimate 6 per cent yield that thousands of private and institutional investors purchased the company's bonds. If that yield were not to be forthcoming, two things would occur:

One, holders of the bonds would be tempted not to convert into common stock. This would at once negate the whole purpose of the flotation which was devised as a means ultimately to provide the company with \$525,000,000 of fresh common equity. At least some part of the bonds would not convert, rendering the company's expan-

sion plans—which in this case means the enlargement of the nation's telephone system—impossible to achieve without recourse to outside financial aid.

Two, if the convertibility clause of these debentures were to be negated, recourse to the public market would be rendered more difficult. American Telephone would probably have to resort to straight bond flotation in face of an impaired credit position. It might not be able to go into the public market for common stock money, after having cut its dividend, without threatening to reduce its dividend still further, at least momentarily. To put it mildly, the common stock market in American Telephone would suffer an upset. It is doubtful, in fact, if an attempted flotation of \$500,000,000 of new common stock—after dividends had been cut on the previously outstanding common, could be sold at a price which would yield less than 6 per cent.

The public has a habit of discounting reductions in established dividend rates. In a majority of cases, the discounting exceeds the proportion by which the dividend is reduced. But even if it should be in precise mathematical ratio, the amount of common stock required to be floated by the Telephone company, if dividends should be reduced from their present \$9 to, say, \$7.50 per share, would be one fifth as large again as would otherwise be necessary. Since the market for new stocks does not show itself capable of digesting issues in the amount originally conceived, how could it possibly absorb 20 per cent more? It could not.

The Telephone company, for sound social reasons, is therefore the one notable exception to the rule that how much should be distributed in dividends is an unknowable

factor. In the case of most companies with convertible issues outstanding, the same reasoning does not necessarily apply. The fact that many of them are badly managed has made it necessary to include convertibility clauses in their new issues. To say that these companies should adhere to a fixed dividend rate is equivalent to saying that they should never change their dividends because they are badly managed. Such a conclusion would be nonsense. Badly managed companies can have no established dividend policy. Their ability to pay dividends is at the mercy of every change in the financial weather.

The thought perhaps most difficult to implant in the minds of men concerned with appraisal of management is that quality of management and quantity of benefits received by a corporation's proprietors need never be expressive the one of the other. This statement may appear absurd. It can do so only if we fail to consider the corporation as an instrument for the fulfillment of certain purposes to which the gain accruing to its joint-stock owners is merely incidental. Moreover, the quality of individual managements has been judged most frequently by those concerned mainly with appraising investments in corporate securities. As a result, judgment has been biased in terms of the relative degrees of gain or loss enjoyed or suffered by holders of particular stocks.

To clarify our position, let us examine the du Pont Company. The author believes that E. I. du Pont De Nemours and Company enjoys, and has enjoyed for many years, the finest management of any industrial corporation in the world. This statement is made without reservation. It is also made, we shall see, without regard to the in-

credible rewards which the members of the du Pont family have gained from their managerial genius.

Having made this observation, let us add another: The company is just as well managed today as it was in 1929; it was as well managed in 1929 as it was in 1915 when the present company was founded; and it was as well managed in that year as in 1903 when the immediately predecessor corporation was established. Throughout almost half a century, the deliberate direction of the corporation, made possible only by the strong sense of purpose possessed by a remarkable group of men, not only has caused the company to grow in strength and social usefulness but has established a basic pattern of managerial control which every modern corporation follows. The creative effects of this unusual group of men have been of enormous importance in contemporary American history.

Direction of the corporation has continued within the family. In 1907 the board of directors included Alexis I. du Pont, Alfred I. du Pont, Francis I. du Pont, Eugene E. du Pont, H. F. du Pont, Irénée du Pont, Pierre S. du Pont, and William du Pont, Jr. Those of the du Pont family who sat on the board forty years ago are now older men with their years of major activity behind them. But their sense of the corporation as a social tool has in no way been impaired. The company is still imbued with the same creative spirit and sure sense of direction which characterized it half a century ago.

Let us use the du Pont company to destroy, once and for all, the illusion that the relative degrees of benefits gained by individual proprietors can be mathematical measures of corporate management. For, as we assert, the

du Pont company is as well managed now as in 1929 or 1915 or 1903, and if the benefits resulting from ownership are to be employed as a major test of managerial capacity, then we must ask why it is that earlier stockholders were more amply rewarded than has been the case since 1929. For with that year there virtually ceased the astonishing expansion in proprietorial worth which had characterized the company throughout the preceding quarter of a century.

Since 1929 the company has paid out in dividends more than one billion dollars or approximately \$91 per share of the common stock now outstanding, the major portion having been distributed during recent years of high income taxes and therefore bestowing relatively little individual benefit upon the already enormously wealthy du Ponts. Had the self-interest of the du Ponts alone been the determinant of dividend policy, dividends would have been far smaller in recent years than has been the case. Earnings would have been retained for capital growth, not distributed.

As a matter of fact, the fear has often been expressed that such families as the du Ponts, because so many of their members are already in high income tax brackets, would institute low dividend policies in the corporations they control in order that their equity might continue to grow unimpaired by the demands of taxes upon their personal income. It was this, of course, which inspired the government to write into the income tax laws Section 102 which, if fully implemented, could compel annual distribution of 100 per cent of the net earnings of a corporation. The fact that the regulation contains many escape

clauses is beside the point. The government has recognized such a possibility—and so has the investing public.

The du Ponts, however, have followed a policy of paying out to common stockholders approximately 86 per cent of annual net earnings available for common dividends and of employing the retained balance to extend plant facilities, to finance the company's vast experimentation programs, and for additional working capital requirements.

There has been no compulsion to make a dividend distribution so proportionately large. However, the officers and directors of the company recognize, from practical experience in conducting their enterprise, that in the case of their company this represents a fair approximation of the residue available for dividends after the corporation's own need internally to generate the money with which to finance its self-expansion has been met. In other words, the dividend policy has been followed in disregard of the private financial interest of members of the du Pont family and in conformity with an abstract conception of a truly distributable residue.

This assertion would appear to hold true only if one examines the company's records since the end of 1929. By that fabulous year, the initial expansion phase of the company had already been completed. It had become, by then, substantially the company it now is, although few of the unique du Pont consumer's products which we now know had yet been developed even in the laboratory.

Investment appraisal of du Pont since 1929 has been largely a process of capitalizing a demonstrated rate of earning power and of dividend yield. Because investors

have been well satisfied with the results, the impression has been created that this process of appraisal is likewise appraisal of du Pont management. But the rewards given to those owners of the present du Pont stock who made their purchases subsequent to January, 1929, have been trifling compared with the gains accruing to men who made their purchases in earlier years.

A share of the present du Pont stock bought at the top of the 1929 market cost \$231. Its price at the moment of writing is \$146, representing a capital loss of \$67 a share. If we assume that the man who purchased his stock in 1929 must have been wealthy in order to be able to invest in so high priced an equity, and that taxes upon his income have averaged 25 per cent throughout the entire intervening period, then the \$91 of dividend income he has received, minus the income taxes he has paid, is approximately equal to the capital loss he has suffered.

He has made no gain and has suffered no loss. So far as his benefits are concerned, he is just where he was twenty years ago, despite the continued progress of the du Pont company. But had the same man purchased 100 shares of du Pont common in 1915 immediately upon formation of the present corporation, his common stock in today's market, including General Motors common shares received as a dividend in 1935, would have a value of about \$263,000. His dividends in 1947 would have yielded him \$128.35 per share of original investment.

What, then, must one conclude? It is obvious that the man who bought his stock at the top of the 1929 market has made no gain whatever, while the man who bought

early in 1915 has gained enormously. Would this justify the two men in having separate judgments as to the quality of this management? Obviously not. For that matter, the investor who had purchased founder's stock worth today about \$260,000 could complain with justice that his stock, at its 1929 high, was worth about \$365,000. Can one then say that du Pont management over the past twenty years has resulted in a loss of over \$100,000 to such a stockholder? Again the obvious answer is "No." This whole approach, it is clear, is no test whatever of the quality of the management.

Yet if the quality of a management is not measurable in proportion to the rate of return upon investment in the enterprise which it controls, what objective meaning can dividends have in our evaluation process?

The answer is that the character of the business leadership of a corporation determines whether wise dividend policies will be followed by it. Honest and farsighted business leaders may not seize every possible opportunity to increase dividends but will nevertheless increase them when a new plateau of earnings has been reached. The best of managements may refrain from establishing higher dividend rates until the new plateau or ascending scale of earnings is no longer subject to question. Yet even they will declare dividend extras from time to time.

In growth companies, an important increase in the established dividend rate should normally be regarded as a precursor to a stock dividend. In this way, investment markets for individual issues are broadened and original risk-takers are given the opportunity of withdrawing some

of their original investment while retaining an interest in the enterprise. It is honest and intelligent direction of dividend policy, capping brilliant and successful business organization, which make for equity growth such as the du Pont Company has enjoyed.

X

Liquid Assets, Plant, and Inventories

THE author holds the old-fashioned view that booms and depressions are the products of past business policy and, at the moment they occur, of the business policies then being implemented. The expansion of plant or the hoarding of inventory in anticipation of a rise in prices is business policy arrived at as a result of decision-making. Multiply such decisions by a hundred thousand similar ones and an industrial inflation is not only in the offing but actually in process. Reverse it at some later date and deflation sets in. In each case, the effect produced is the product of business decisions made by men. Men control their destiny in this respect. They are not the victims of blind circumstance. It is their reasoning, their judgments, and their decisions which bring about fluctuations in our nation's economic activity.

If academic economists held this view, a refreshingly practical approach towards economic problems would be developed. Before attempting prognosis, economists would examine the actual business decisions arrived at in immediately preceding periods. They would place less emphasis

upon the speculative aspects of the markets for industrial products and more upon the organic changes which have occurred within the corporations which serve these markets.

One fact would be impressed upon them: That although man controls his own economic destiny, he cannot escape the consequences of the decisions he has previously made. Every business action he performs produces effects which can be modified only by the adoption of subsequent safeguards which themselves serve as causes of later effects. It is in this continuous chain of compensating cause and effect that lies the secret of industrial fluctuations. The perception that a trend has gone too far leads to decisions which reverse it.

Specifically, the business decisions made in preceding periods and which have either maintained corporate liquidity or have deprived corporations of an adequate net surplus of quickly realizable assets are, generalized over the whole economy, the determinative factor as to the nature of the demand for loan money. They determine the extent to which corporations cease to be independently capable of financing their operations. They determine the attitude of bankers toward the money needs of industrial corporations.

The plain fact is that as a result of faulty business judgment, the credit standing of the average corporation is weaker today than it was a year ago. It is far weaker than it was in 1929-1930. Month by month it is growing weaker still. Within the average corporation a progressive transformation is taking place in the nature of the assets held. Cash is seeping out of corporate coffers. Receivables

and current payables are growing in about equal proportions. Inventories are mounting rapidly. Plant is being expanded at the highest rate in our industrial history. The ratio of liquid assets to current liabilities is deteriorating steadily.

In 1930, one leading company had quick cash assets equal to 6.2 times its current liabilities. At the end of 1946 this ratio had been exactly halved, still leaving a more than comfortable excess of cash items and receivables over bills due within one year. But as of latest report, the net quick ratio has declined to 0.6 to 1. The corporation's net current assets declined in twelve months, from September 30, 1946, to September 30, 1947, from \$5,686,530 to \$2,219,421. During the same period, fixed assets—net of depreciation and amortization—rose from \$18,551,667 to \$28,984,540.

A second company had, in 1930, a ratio of quick cash assets to current liabilities of 9.3 to 1. By the end of 1946, the ratio had declined to 2.3 to 1, and by December 3, 1947, to 1.14 to 1. Net current assets at the end of 1946 were \$62,900,000. Net working capital of which inventories totaled \$44,000,000, declined by over \$10,000,000 during the following twelve months although inventories rose by \$4,800,000 and despite the fact that \$7,000,000 had been borrowed in 1947 and is still outstanding as long-term notes payable. During the same twelve months the net property account rose from \$20,700,000 to \$40,000,000. Inventories now constitute 72 per cent of the company's total net worth.

These two examples are typical. What has occurred in the average corporation is a shift in the nature and pro-

portions of the assets held. Cash has been transformed into plant or into inventories. The tendency is still in that direction. Inventory accumulation and plant expansion still proceed although the banks have made it clear that they grow more concerned each day over their lending policies. The average corporation is moving towards an urgent need for credit simultaneously with a realization by bankers that the time is perhaps near at hand for a general restriction of credit.

Seldom before have our corporations experienced a shift from one category of assets to another so marked or so sudden as has occurred over the past three years. This shift would probably not have taken place had the average executive been more aware of the nature of this trend. Many company officials express the view that there is no real danger in today's inventory situation because corporations have established ample reserves to cover possible shrinkage of inventory values and because the last-in first-out (Lifo) method of inventory valuation is commonly employed. Corporations, they assert, have insured themselves through reserves and are carrying inventories at conservative values which should immunize them against future writedowns.

Let us examine these two assertions. The contingency reserve in its contemporary form is a wartime development. It came into being because corporation treasurers and comptrollers did not feel that wartime "profits" were necessarily profits at all. Until uniform accounting standards had been established for the closing of books on inventory accumulated in furtherance of war contracts, corporations could not be sure that substantial losses might

not occur upon contract closure. Renegotiation likewise had its effect in leaving profits an indeterminate item. What would happen during the "transition period" was quite beyond the capacity of corporation officers to predict. The contingencies were real and the provisions made for them were well warranted. In fact, there is hardly a corporation in the land which has not had to make retroactive adjustments in its earnings statements for the war period.

Let it be noted, however, that contingency reserves of this type concern themselves exclusively with the profit and loss statement. Most corporations feel that current profits are in part fictitious, and that, for the sake of honest reporting, substantial offsets must be made even though these may be disallowed for tax purposes. Underlying this thought is a suspicion that inventory values are inflated and that the current rate of industrial activity is excessively high. It is reasoned that should an industrial downturn occur many corporations will find themselves with too high a break-even point and, in any case, may have to take losses on a large part of their materials, work in process, and finished goods.

However, the safeguards adopted are usually no safeguard at all. All that has happened is that an attempt has been made to reduce reported earnings during the past three years in order that reported losses may be reduced when the downturn comes. Adoption of such a device in no way improves the financial condition of a corporation; nor does it offer the slightest protection against too high a break-even point or against an overvalued inventory. It simply makes it possible to pretend that severe losses

will not occur in the future in the same way that it has been pretended that prodigious profits have not been made in the recent past.

It will be asked, does not the establishment of a substantial contingency reserve offer protection against the dwindling of assets? Not necessarily. That depends entirely upon the nature of the reserve, upon whether it consists of cash or of the transfer of assets from earned surplus account to a reserve carried as a long-term liability.

One company, for example, reported as of the end of 1947 working capital totaling \$59,000,000 of which \$58,000,000 consisted of inventory. That is, the company could report only \$1,000,000 of liquid assets over current liabilities, although it had established a \$5,000,000 contingency reserve to protect it against inventory declines and the like. Between June 30, 1946, and June 30, 1947, this reserve rose by \$4,000,000 although liquid assets declined by \$15,400,000. Cash alone declined from \$21,800,000 to \$6,400,000. In other words, the contingency reserve established by this corporation, like that of most other companies, does not consist of cash, of marketable securities, or of segregated receivables. Therefore, it cannot serve to protect the company against a deterioration in its balance sheet items no matter how it may affect its future earnings statements.

Wartime renegotiation and contingency reserves were occasionally carried among current liabilities. As such, they were the proper subject of two queries: One had to decide whether the sort of contingency foreseen by the officers was likely to materialize and, if it did materialize, whether the provision made had been ample enough to

cover it. In either case we were discussing the validity of a current liability which, upon deletion from current liabilities, served ultimately to strengthen reported working capital.

But when we are concerned only with a long-term liability, with a contingency reserve which has no bearing whatever upon the current asset position of a corporation, we are dealing with something in the nature of an accounting enigma. It has been established ostensibly to protect the company's assets but can in no way do so. It is termed a contingency reserve but it does not consist of a fund with which to meet contingencies. It is, in short, no reserve at all against the sort of difficulty which the average corporation may have to face during the next few years. It certainly cannot prevent a substantial cash outflow should the company begin to lose money because of price declines or excessively high break-even points.

But what of the Lifo system of inventory valuation? Most observers believe that Lifo will protect the average corporation against an inventory break. This opinion loses value when subjected to close scrutiny.

Remember that we are not dealing with an abstract Lifo system or with an abstract corporation. We are dealing with Lifo as it actually works and with corporations as they are actually conducted. What do we find? In company after company inventories as reported have risen over the past two years and are continuing to rise, whether the company employs the first-in first-out method or the last-in first-out.

In the case of the former, it is not necessary that there be an actual increase in physical inventory in order that

an increase occur in inventory values as reported. It is sufficient that the number of inventory units remain unchanged but that their replacement be at successively higher costs as prices rise. In such a case we have a clear example of a corporation which will have to take a severe inventory licking should industrial prices break.

But the Lifo company, the casual observer believes, is immune to this. The value of the inventory, on the Lifo basis, is trended by charging against it the hypothetical outward shipment of materials, etc., at the last purchase price paid. Should there be no change in the number of inventory units accumulated, then there need be no change in inventory values as reported. But if, under the Lifo system, there is a progressive increase in the reported value of inventories despite the fact that the highest priced units are in theory shipped out first, then it is clear that a rise must have occurred in the physical quantity of inventory on hand.

The point should be obvious. The companies employing Lifo may be the very ones in which the largest inventory breaks occur because their physical quantity of inventory, where reported inventories have increased, must have risen over the past years.

Neither the mythical reserves which have been established nor the mythical protection of the Lifo system can serve to reduce the impact upon the average corporation of whatever deflation is in store for us. Possibly, had the habit not developed of looking upon these two accounting practices as adequate insurance, the gross disproportions which are developing in the average corporate balance sheet might have been stopped months ago. Many execu-

tives, if pressed to a logical conclusion, would concede that their own reserves are not reserves at all. These same executives take comfort from the reported reserves of corporations in general. It does not seem to have occurred to them that the reserves of most corporations are as illusory as their own; that in the economy in general not only does no reserve fund exist to cover future corporation contingencies but a shortage of corporation cash is developing.

Let us compare the pertinent historical backgrounds of the present period with those of the last two great depressions.

The most significant fact is that income tax was introduced only in 1913, and that, by 1920, it had not yet exercised its deleterious effects upon the financial structure of our businesses. Not even by 1929 had the machinery of state grown so vast that it could subsist only at the cost of corporate liquidity. The contrary was the case. From 1922 to 1930 there was a continuous reduction in the amount of federal debt. Corporations were able to accumulate liquid assets and entered the depression so soundly financed that dividend payments by our leading corporations continued through most of the depression years. The historical background of the present period is very different. The proportion of corporate earnings going to the servicing of federal debt and to meeting the budget requirements of the government is now enormous—and threatens to increase.

Such being the case the well-conducted corporation should cut its cloth accordingly. It cannot conduct its plant expansion programs as though the federal govern-

ment next year were not going to take a huge slice of its income. This is not 1928. The nation cannot now have both new plant and enormous federal expenditures. The people must take their choice as to which they want. But the corporation has no choice to make—although most of our companies have been acting as though that choice existed.

Now it may be a revolutionary doctrine that a corporation ought to take stock of its social environment before embarking upon expansion of plant. If it is, it is very sound doctrine indeed. For if the consequence of transforming liquid assets in the face of an abnormally high tax rate upon corporate earnings is to jeopardize the ability of the average corporation to continue dividend payments during potential periods of slack trade, then management would be failing in its duty toward stockholders.

There is a possible offset to this. Enlarged plant increases at least the mortgage value of the average corporation and therefore its ability to raise loans. But several factors modify this offset. Since 1940, the existence of very large funds in the hands of banks and insurance companies has enabled a great many of our industrial corporations to negotiate serial loans. While these evidences of indebtedness do not contain the implicit dangers of a demand position, they render it difficult, and in many cases impossible, for corporations to make further loans in times of crises. This situation is much more widespread than the average business executive yet realizes.

Business caution during an inflation may involve turning down some orders and even, perhaps, relinquishing

some ground to competitors. Be that as it may, a company which endangers both the dividend prospects of its stockholders and its own internal security by pursuing policies which syphon off corporate cash whilst inventories mount and plant account increases, is not too well managed.

*Ratio of Quick Cash Assets to Current Liabilities
of 50 Leading Corporations*

	1930	1946	1947		1930	1946	1947
<i>Company</i>	<i>Ratio</i>	<i>Ratio</i>	<i>Ratio</i>	<i>Company</i>	<i>Ratio</i>	<i>Ratio</i>	<i>Ratio</i>
A	8.1	3.1	2.8	AA	17.3	2.2	1.8
B	9.5	4.9	3.5	BB	11.4	1.3	1.6
C	6.2	3.1	1.9	CC	8.9	2.1	1.5
D	2.6	1.4	1.1	DD	11.7	2.1	1.8
E	4.8	2.8	1.7	EE	2.2	1.7	1.3
F	4.1	1.1	0.5	FF	6.1	2.6	2.1
G	2.2	2.1	1.4	GG	7.0	2.5	1.8
H	5.0	3.9	2.1	HH	5.2	2.0	1.3
I	3.3	2.0	1.2	II	5.5	2.7	1.4
J	6.5	1.1	0.7	JJ	4.2	4.0	2.5
K	9.3	1.9	1.4	KK	8.5	1.8	1.3
L	3.1	2.5	1.4	LL	5.7	2.1	2.3
M	5.1	3.1	1.5	MM	4.6	1.4	1.2
N	3.6	1.8	1.6	NN	9.7	2.6	2.0
O	2.7	1.5	1.4	OO	2.3	2.1	1.6
P	10.0	2.9	2.4	PP	5.2	2.0	1.8
Q	9.6	3.3	1.6	QQ	8.0	3.2	3.2
R	2.1	1.5	1.6	RR	7.3	1.4	2.7
S	2.9	1.6	1.6	SS	8.2	5.4	2.8
T	9.3	2.3	1.2	TT	9.5	2.0	2.0
U	3.8	0.9	1.5	UU	6.8	4.3	3.4
V	3.1	5.4	2.4	VV	10.4	3.4	1.9
W	7.1	1.7	1.3	WW	7.9	1.5	1.3
X	2.6	9.1	6.3	XX	7.1	1.2	1.1
Y	13.8	2.2	1.9	YY	16.1	9.6	2.8

XI

Production

ONE hundred years ago, in 1849, Calvin Colton, in his *Public Economy for the United States*, asked

Is it to be supposed, that the almost innumerable small and weak manufacturing crafts of this country in the infancy of their existence, and with all the imperfections of their arts, can maintain their position, against the superior and more perfect arts of Great Britain, on a basis of Free Trade when, besides this disadvantage, itself enough to break them, American manufacturers have to pay twice as much for money and labor? It is preposterous to suppose it can be done.

Nothing could more aptly illustrate the disadvantages from which American industry suffered in those early years of the Republic. Low industrial technique, high unit labor costs, inadequate finance, and limited markets made American industry unable to withstand the open competition of Europe's, and particularly Great Britain's, low-cost, low-wage, well-established industries.

During the past century, the position has been totally reversed. In many lines, and in most of those in which mass production is the common mode, unit costs in this country

are now lower than in any other country despite wage rates which have grown still higher than those prevailing abroad. It is important, however, to note that America's productive superiority is confined mainly to its mass production industries. Even among these, it is to be found for the most part in lines whose greatest markets lie at home. In most other lines of industrial production, America not only has no competitive advantage over other nations but is sometimes at a serious disadvantage even after wage differentials are discounted.

In shipbuilding and in certain branches of machine tool construction, carpentry, pottery, and other industries which demand high skill, labor time per unit of production is often higher in this country than abroad. Even in cotton textiles, America's competitive standing is secondary. Therefore, when attempting to measure the relative productive efficiency of a firm, we must place it in proper relation to the technical competence of its competitors in this and other countries.

Since the Revolution, America has operated under the shelter of protective tariffs. Whatever virtues for American industry might lie in Free Trade in modern times, there is no doubt that in the infancy of American industry, progress would have been impeded had domestic manufactures met, unaided, the competition of imports produced under technically superior conditions and at lower hourly wage rates than were common here. America's tariff system has been a shelter beneath which her young industries have clustered for refuge in their growing years.

This does not explain the prodigious rate of progress achieved in the United States. Other nations, notably

France, have protected their industries without making the same rapid technological strides forward we have experienced. But in other lands there has been missing a continuously expanding domestic market. Access to virgin soil has been for centuries denied the rural populace of Europe, even after its emergence from Feudalism. In America, by contrast, generation after generation took up free land, built their own homes with their own hands at little cost other than the labor involved, cleared the wilderness, and grew upon the fertile, untilled acres almost all they needed for their physical sustenance and had a surplus left for market.

This marketable surplus of the American homesteader and rancher, above the necessities produced by himself and his neighbors, was exchanged on the market for the product of America's urban industries. As population grew, by natural increase and immigration, and as more and more free land was taken up, the surplus product of the American subsistence farmer provided an expanding market for the products of manufacturers. Her industries protected by tariffs, her capital needs supplied by a continued inflow from abroad, her agriculture continuously expanding and, as it expanded, creating both the means of support for an increased population and the need for others to satisfy the growing product wants of this rising populace, America could hardly have failed to develop a flourishing industry.

A third factor has hastened the drive forward. When, towards the close of the nineteenth century, great trusts began to emerge, the Sherman Act was enacted to forbid the stultification of industry. Despite the concentration of

economic and political power gained by such organizations as the old Standard Oil Trust, it is somewhat doubtful if antitrust legislation would have been enacted even then had not the purpose of the trusts been contrary to the century-long American habit of continued growth.

For the trusts were formed to restrict expansion in the fields in which they operated, to impose monopolist prices, and to deprive the people of these benefits of increased volume of production to which they had grown accustomed. Outlawing such practices, the Sherman Act laid down the cardinal rule of American business: to survive, it must prove itself competitively capable of survival. Since the law was enacted, in the maturity of the American economy, management's emphasis has been compelled to be upon cost reduction, volume increase, and style change.

This, then, is America's industrial background: continuous protection of American industry from foreign competition, especially from that of sweated labor in foreign lands; a century-long expansion of the domestic market as the country opened up and population grew; and the will of the people, expressed through congress, that industrial management must constantly improve the general social lot. This happy combination of economic fact and political outlook is the cause of America's prosperity.

Having said this, what are its practical implications? They bestow no accolade upon American ingenuity. Conceded that many of the machines now in use in this country are technically superior to those in use in other lands, this is not because Americans have been more ingenious

in their development but because other nations, with just as good technicians at their command, have had too little cause to become cost-conscious to adopt them universally.

These same machines could be purchased before the war by anyone wishing to employ them, in this country or abroad. Their manufacturers not only have always wanted to sell them to foreign lands but are willing, if the sale warrants it, to send outfitters and instructors along with the machines to see them properly installed and to train workmen in their use. They do the same thing here at home every day of the week.

Foreign countries have not yet sufficiently availed themselves of this not-specifically-American technology. Why? Because labor is cheap abroad and machines, therefore, relatively dear. Labor is dear in this country; even the most expensive equipment therefore proves relatively cheap. In other words, the originally high American standard of living is itself responsible for the continuous technological progress which makes maintenance of that standard of living possible. America cannot afford not to make progress. The lower standard of living in foreign parts, even in those which once were ahead of the United States in technique, is a prime cause of their present technological backwardness and their competitive decay.

Domestically, the same parallel cannot be drawn. Within the same industry, wage rates in this country tend towards an equality. The performance characteristics of the average machine on which labor is employed are known precisely. The essential labor costs of production are therefore computable company by company, by any competent engineer, so far as concerns man hours and direct man costs

per unit of output. It would seem, then, that relative degrees of efficiency, given comparable equipment and comparable quality and hourly cost of labor, could not vary widely, company by company. This impression is heightened by the fact that competitive markets force similar or identical products produced under different conditions to match each other on a price basis. Productive efficiency would therefore seem to be able to be computed merely by knowing the type of equipment employed by the firm under review.

Such an impression is totally false.

By definition, productive efficiency is expressed in relative terms. Given the same equipment and the same caliber of workmen turning out the same product with the same raw materials, direct costs in one company may exceed by 10 per cent or more the cost of producing the same items in another firm. Even between plants identical in all respects including location, the cost differential may prove just as wide. The explanation lies entirely in the realm of how the respective managements handle their labor force.

Efficiency and Labor

Labor has two aspects. On the one hand, it is a resource bought and sold by the hour, as wheat is sold by the bushel and iron ore by the ton. It is a cost of production, an indispensable ingredient in the industrial process, paid for in cash and bought in markets of varying degrees of competitiveness. On the other hand, it consists of human beings who, while they may sell their labor time in return for their means of livelihood, will turn out better or worse

work, more or less of physical quantity of product during that labor time, in accordance with the skill with which they are directed.

The finest production engineers, if they are incapable of handling men, seldom turn out low-cost volume items at a competitive price. An engineer trusted by his employees and equipped with the capacity to deal with human beings as human beings, not as mere production units, can, and usually does, outproduce competitors with superior equipment but inferior ability to work with people. In plant after plant this has been demonstrated.

Scientific methods for raising output will fail if they violate the precept that production is a human process, concerned with human beings. Charles Bedaux devised production methods which, in theory, ought to have cut unit costs to a minimum. But he grew to be feared by workmen throughout the entire world of industry.

His production methods therefore found no place in this country. Likewise with Bata, the Czechoslovakian shoe magnate. His attempt to introduce in America the driving methods employed in his European plants met resistance from the workpeople and denunciation from our lawmakers. Without a single exception, such systems have never achieved production results comparable to those attained everyday in this country in plants where relations between management and workmen are truly harmonious.

One of the author's associates worked in his youth in one of Europe's "greatest" foundries. That foundry limped along in moderately good times, made substantial money during booms, and lost most of its previous profits whenever depression came along. The company had experienced

its greatest growth between 1850 and 1900, in the days of low wages and a vast and continuous foreign market for its merchandise. It had had to face no serious competition until the opening of the twentieth century. Although it continues to survive, it has made no progress at all since 1900 other than that which came to it fortuitously during the First and Second World Wars.

The explanation for its failure to make progress lies in faulty utilization of its labor force. Plant has always been kept reasonably modern and equipment comparable to that of its main competitors throughout the world. It is not disadvantageously located nor is it unknown in even the most remote markets. But instead of having anything resembling an incentive system for its workmen, the exact contrary is the case. Initiative and desire for self-progress are discouraged.

For example, in one of its departments, certain day laborers employed in hauling materials from the work hoist to the storage racks proved themselves lazy, inefficient, and disgruntled. They were taken off this work and placed at simple machine tasks on a piecework basis, which at once stepped up their energy output, their own earnings, and their value to the firm. However, instead of mechanizing the haulage to replace these men, in their place as day laborers, good workmen, known to be willing to work, were taken off machine work at which, under the piecework system, they had benefited from their willingness to expend their full energies. They were placed upon the lower paid, backbreaking tasks which gave them no real reward, monetary or otherwise. Their willingness to work was penalized and exploited, not rewarded.

That attitude towards willing men prevailed throughout the whole plant. On one occasion, a youngster aged nineteen suggested a basic improvement in one of the minor production processes. It would, he pointed out, cut down the number of men needed in this operation from seven to two. The firm saw the advantage, adopted the innovation, and discharged five employees, among them the man who had made the suggestion.

One final illustration: A group of highly expert—and highly dissatisfied—workmen left the company's tinning department and accepted better paid jobs in another factory in the same town. On learning of this, the company's president demanded from the managing director of the second firm that the men be sent back to their old jobs. The men were discharged from their new employment, told to go back to their old firm, and were warned that if they failed to do so they would be blacklisted throughout the industry.

Can it be wondered, in such an atmosphere, that even the finest equipment could not be employed profitably except in boom periods? Employees were prevented from experiencing any satisfaction in their work, from feeling loyalty towards the firm or sympathy for its problems and from expressing that conscientiousness which every good workman wants to be able to express in his working life. This is a badly managed company. Because of the attitude of the top management, not even the finest production engineers have yet been able to straighten it out.

Examples of this sort are not unknown even in America. Fortunately, they are rare. On the other hand, there are hundreds of companies in which individual productivity

is high because workmen are contented. In most cases the separate degrees of production efficiency have been determined mainly by management's attitude towards personnel. Given the average workman and the proper type of equipment for him to work upon, efficiency at the production level is invariably determined by how the men are handled. Willing hands working on old equipment will turn in profits where unwilling men on the best of tools will cause a loss.

That is the essential secret of successful industrial production!

The Economics of Mass Production

Division of labor is the point of departure between production in its modern form and that carried on under handicraft conditions. All thought regarding industrial efficiency must start with this axiom.

Machine industry and primitive industry are differentiated by the specialization of labor in the former, while mass production differs from small-scale modern production not in kind but in degree. In both the latter, subdivision of labor is the basic form. Even the smallest machine shop strives to standardize its operations and to segmentize production into unit tasks, just as does the giant firm whose work flows out on the production belt. The latter simply carries specialization of function to greater extremes.

Mass production, however, differs from all other forms of production in that the conveyor, at least in theory, brings to a minimum the amount of human labor expended in transportation of work in process from one stage of production to the next. This is characteristic of

every mass production plant. It need not be characteristic of other forms of modern industry in which the labor expended in moving materials and work in process from one machine or stage of operation to the next can vary widely. This is true of nonstandardized industries such as shipbuilding, airframe construction, building in all its forms, and similar highly skilled crafts in which customer requirements vary widely, unit by unit, making standardization difficult. However, when demand for even the most complex product grows large enough, and if its design be "frozen," many of the elements of mass production are able to be introduced.

As examples, Higgin's PT boats during the war, Kaiser's mass output of Liberty Ships and the remarkable volume achieved throughout the entire aircraft industry once large enough orders for planes of predetermined types were placed, illustrate not merely an intermediate stage between workmanship of high individual skill and mass production as ordinarily conceived, but demonstrate also that minute subdivision of labor, even in the absence of the production belt, is always possible under high volume conditions. These two industries, shipbuilding and airframe construction, once high volume became obtainable, gained efficiency not only through increasing the expertness of multitudes of individuals engaged in the repetition of easily learned tasks, but by being able to mechanize the flow of materials to a degree which lesser volume of operations would not have permitted.

It has often been said, as a matter of fact, that the main effort expended in human industry is in transportation. Some theorists have stretched the simile a trifle far and

have insisted that production consists exclusively of transportation, that it involves merely the movement of raw material from the earth and its placing against some shaping tool or tools. The theory may be somewhat extreme, but it does contain a lesson for all of us concerned with organization of man's efforts to their most efficient ends. Crosshauling of materials is an obvious stupidity which calls for no comment here—although many firms are guilty of it. But crosshauling within a plant, the fundamental antithesis of the conveyor system, is common to the majority of firms that are not on a mass production basis. For the moment we are concerned with the mass production unit distinguishable as such.

The mass production firm is necessarily a giant company. This need not mean that a giant company is necessarily a mass production firm. The terms are not reversible. But it is impossible for a company to reach the stage of being categorically a mass production enterprise until its resources have become ample enough to enable it to construct the highly expensive plant requisite to this form of organization.

Engineers often insist that efficiency and financial considerations have nothing in common. One readily perceives what leads them to this view. Called upon to advise as to new plant, or to comment upon existing processes, their attention is usually confined to the question of relative rates of physical production per man per hour. To them, therefore the matter is the simple one of fullest possible utilization of labor time. Finance seems strangely remote from so simple a consideration. But the mass production firm, because, per worker employed, it must invest

greater capital in more complex plant and more numerous types of fixed assets than the firm with cruder equipment, approaches the mass production question not only in terms of the efficient use of labor but also of the efficient use of capital. Transformation of a firm's pattern of production from one in which many individual skills find their expression to a mass production basis involves, therefore, a basic transformation in the nature of the assets it holds and in the relationship between the various forms of those assets.

Relative to each worker employed, and to each unit of production, working capital needs under mass production are reduced but fixed capital requirements are increased. Let us, like the classical economists, assume "all other things to remain equal." By this we mean that the speed with which each unit produced realizes itself on market remains unchanged and that prices are unaffected. We know that neither of these assumptions will be realized in full but they provide a convenient framework within which to press our logic and to avoid needless disputation. Now, by definition, under conditions of mass production, hours or minutes of labor per unit of product are reduced, due to the increased tempo of production. As the product, originally purchased out of working capital in the form of raw materials or semi-finished goods, and containing wages advanced out of working capital but repaid out of the production itself, retransforms itself into money upon reaching the market, the rate of turnover of working capital will rise proportionately to the rate of turnover of goods. Fixed assets, however, capital invested in the form of landsites, buildings, facilities, and equipment will turn

over more slowly than in cruder forms of industry whose ratio of working capital to total capital is normally higher. Employing labor less efficiently, transforming raw materials into finished products less swiftly, and bringing goods to market more slowly, the non-mass production firm need have little fixed assets but requires heavy working capitalization.

The basic distinction between the two forms of production is therefore between investment in fixed assets and investment in labor time per unit of output. Because of this, transformation of any plant or industry from a condition of relatively highly skilled labor to a mass production basis is a capital risk in the most extreme degree. It is venture capital in the proper sense of the word and involves risk-taking which, if ultimately proved ill-advised, could be catastrophic in its consequences. If well founded, the material benefits to society and to the individual concern are enormous. The risk involved is proportionate.

Judgments of engineers as to the relative efficiency of various concerns, even within the same industry, are consequently no absolute criterion. Beyond the question of how much output can be achieved per man, and even beyond the question as to potential costs if basic changes should be made in the method of production, comes the question of the relative changes in the composition of the capitals employed. Production and sale, it should be noted, concern themselves with physical quantities but must ultimately express themselves in money terms. For a company, or an entire industry, so to increase its potential productiveness that, given a limited market, the realizable return could not compensate for the required increase in

fixed capital investment, is not industrial efficiency but inefficiency of the grossest type.

If a mass production plant has been constructed without sound regard to market, and if the market for its products turns out to be such that it can operate at peak efficiency only during brief periods, and may even close down entirely for prolonged stretches, then even the greatest cost reduction achieved during its period of peak operations is no evidence of efficiency.

It is at this point that engineers so often develop a professional myopia. What they sometimes term "financial considerations," and sneer at as having no relevance to the efficient use of human energy, are as truly cost elements of efficiency as the time-study factors already expended and already realized in long-enduring form. To the extent that such plant exceeds the actual requirements of the market for its products, a wastage of human labor has taken place and will continue to manifest itself throughout the entire life span, brief or long, of the corporation. If the consequence of misjudgment as to potential market is to drive the concern into receivership, later purchasers of the plant, in purchasing it at a discount from its construction cost, implicitly recognize that much of the human effort which has gone into its construction has already been wasted. Society writes its wasted labor off its books.

Financial considerations are therefore basic to a study of efficiency. Engineers—and thousands of people who are not engineers by any stretch of the imagination—may talk in terms of "ergs." No doubt, this approach to our social problems has enriched our vocabulary and our whole thinking regarding industrial society. But if, because we

think only in terms of ultimate energy output, we ask thousands of workmen to devote their laboring hours to the construction of plants capable of reducing the production time required for certain types of goods without having first considered society's physical demand in terms of units, and expressed demand in terms of purchasing power, for an increased supply of these commodities, we are being completely unrealistic. We display no true cost consciousness.

Cost Controls and the Cost of Controls

Since there is little to choose between our major mass production firms so far as direct costs of production are concerned, it is obvious that differences in their efficiency must lie in other factors. Disregarding the firm's attitudes towards employees, those factors almost invariably are to be found in variations in overhead charges.

In overhead, we include not only the costs of interest on loans, maintenance and repairs, amortization, heat, light, and so forth, but the general cost of supervising the enterprise. Some firms have grown so rapidly, especially during the war, that excessively large supervisory staffs are now to be found among them. One company, for example, employed about two thousand production workers before the war and had a supervisory staff of one hundred and twenty-five. Today, the company employs eight thousand men and women in direct production and fifteen hundred in supervisory capacities. Its actual unit costs of production in the shop have been reduced significantly but the whole of that reduction has been more than absorbed by the increase in supervisory charges. The company hopes to

double the number of its employees during the next five years and believes that this can be done without any further additions to its supervisory staff.

But should the market for the company's products not grow as expected, the most perceptible area of economy will be within the field of supervision. This is tantamount to saying that costs of superintendence are already too high relative to immediately foreseeable demand and that the company's expansion has been achieved at the cost of increasingly wasteful expenditures on the management side. The expansion, in other words, has been at the cost of over-all efficiency. The higher productivity per head of which the company boasts is an economic illusion when the firm is considered as a whole. Efficiency, in this company, is lower than it was in prewar years although a greater volume of output is being achieved per dollar of wages spent at the machine.

During the war, the author commented to the president of this company that his rate of expansion, under pressure of war orders, was unnatural and was unhealthily rapid. Five years ago he advised the firm to begin critical examination of its control systems. Unfortunately, the top officers of this company are wedded to a belief in the supremacy of paper controls. They claim to know exactly what quantity of what material is on hand at any one moment, the stage of production it has achieved, and the actual proportion of total costs apportionable to the most minute of operations. What the "efficiency men" who bred this concept were driving at, is clear enough. They were overawed by the magnitude of the inventory problem which war orders had generated. But instead of concen-

trating upon more scientific buying and upon laying out work in such a way that inventory could be turned over at the maximum rate, they turned their attention to the purely accounting aspects of the perpetual inventory. Instead of cutting down the amount of material entering the firm, and of trying to do a larger business with a smaller material stock, they did what many other firms did at that time. They went into the open market to buy all sorts of scarce items, hoarded these materials, and then grew more and more fearful as contract termination day approached. The entire control system now reflects this fact.

It is perhaps unfortunate for the national economy that a lot of firms who operated in this way were sheltered from hurt in the bad inventory breaks which occurred at the end of the war. Fortunately for themselves, and unfortunately for the nation as a whole, tax laws and lenient processes in war contract termination sheltered companies which had behaved in this slipshod fashion. Top officers of such corporations, and their boards of directors, have therefore not yet been forced to face the fact that their so called efficiency systems are frequently nothing more than highly elaborated, highly expensive, and highly unnecessary bookkeeping mechanisms. If excessive inventories can be acquired and then the work-flow laid out so badly that material does not turn over half as fast as it otherwise could, top management usually knows this only when a striking increase occurs in costs or when a severe loss brings it sharply to its attention.

It is possible that the plethora of money which flooded the country during the war years and the slackening in cost-consciousness which came about in young firms high

in the excess profits tax bracket, have produced a momentary reversal of the traditional American way of doing business. America's progress has been achieved through continuous price reductions, through selling a larger volume of product at a progressively smaller retail price per unit. There has been no dramatic suddenness in this policy. On the contrary, capable management has endeavored to increase volume and to nibble away at unit costs at the same time. The best run companies reduce their costs gradually, by eliminating tools and processes for which more economical substitutes have been developed, by cutting down paper work wherever possible, eliminating duplication, and by similar prosaic and unromantic means. It almost never happens that a company achieves overnight a complete revolution in its industrial methodology. If it does, and if the company is a well-managed one, the nibbling away at costs still continues. Not in the dramatic economies but in those which demonstrate continuous cost-consciousness lies true industrial efficiency.

No company reveals to its competitors the proportion of its costs going to overhead. S.E.C. or no, published financial statements are valueless in this respect. No company, in fact, knows exactly how it got its overhead costs as low as they are. Over a period of years, the elimination of duplication, cutting down on paper work, increasing the velocity of materials, and similar reductions in costs are achieved pragmatically. They may eventually assume the form of system but usually they arise from a sort of penny-pinching attitude towards overhead expenses. Intelligent industrial managers look upon overhead costs as perhaps necessary evils, but as evils and therefore to be combatted.

They do not regard elaborate offices, uniformed flunkies, men and girls engaged in tabulating information of almost no value to the executive officers, as part of the way of doing business. In fact, it is not doing business at all. It is merely creating the impression of doing business. But many a career has been built up by such impressive and expensive window dressing.

In the well-manged firm, cost control lies in the shop. The production manager who tries to do his job from his office desk, loves to press buttons, and works mainly from charts and graphs, ought to be sent back to the machine for a couple of years to learn once more what production really consists of. When the production engineer becomes a chair-warmer, he ceases to be a sound production man. Of necessity, much of what he then does could be done at least as well by men trained in office routine but knowing little about production. The engineer who spends his time in the shop, who, whenever something goes wrong in the plant, uses his legs to get to the site of the trouble, finds out what is wrong, and then makes recommendations on the spot as to what to do about it, is a man well worth his salt. A company whose production men work in this way is one in which costs are being kept down. Those in which top production executives sit in panelled offices and wait for written reports on every breakdown or problem to reach them before deciding what action to take—and there are plenty of men of this kind employed at high salaries even in American plants—are invariably those in which overhead is already out of hand.

The essence of the matter lies in the approach to the problem. Production men who regard their dignity as

more important than paring costs gravitate automatically towards so-called scientific systems. The men who look upon the job as the important matter, who spend their time in the plant, are the men who see at first hand the major problems as they arise—and often before they arise. When Sorenson was production man for Ford, he was usually to be found where he belonged, somewhere down the line, watching the belt, watching the men, and thinking out ways to make the operation do a better job at less cost.

Plant and Overhead

All over the United States during the past few years there have been built hundreds of new plants, handsome enough to put many of our public buildings to shame. The author has been through a number of them and has come away from more than one shaking his head in dismay. The plants are fine looking places with huge windows, lots of floor space, plenty of air and sunlight, and with fine lawns around them. They in no way resemble the ugly buildings we used to put up in this country when we were settling down to do a job of work. This does not mean that an efficient plant cannot be housed handsomely or that workmen should not have adequate air, sunlight, dining rooms, and sanitary facilities. Of course they should. That goes without saying. But in a lot of these new plants, architectural considerations seem to have overridden economic ones.

In one factory which the author visited recently, the entire operation could be housed adequately in half the floor space now being used. The effect would not be quite

so pretty and the company might lose some of the reputation it has gained for its highly modern views on working conditions. But not a single workman would suffer any harm whatever if the aisles were made narrower, the machines shoved as close together as considerations of safety and efficiency would permit, and the whole project compressed into smaller compass. The company operates five plants in close proximity to each other. Engineers hold the view that if the pretty-pretty attitude were abandoned and a trifle less emphasis placed upon impressing visitors, journalists, and politicians, two of the plants could be vacated completely and the company's offices could be housed, a trifle less commodiously but housed nonetheless, in a portion of the floor space which would be made surplus in the third plant.

The two plants which could be vacated have a current market value of about \$5,000,000. The present administration building is worth perhaps \$80,000, including land-site. If the operation were to be compressed into smaller floor space there would be physical room for the company to double its operations, or space would be made available for some other manufacturer to come into this locality. In any case, \$5,080,000 of salable plant would be made available to the company for expansion of operations or for transformation into working capital.

So much for the immediate saving. What about the continuing saving in overhead? As things are today, the air space to be heated and ventilated and the floor, wall, and ceiling areas to be painted and kept in repair are twice what they need be. Workmen walk further to and from the plant gate than is necessary, take more steps during

the day than the job physically requires, are too far apart from each other for continuous flow of materials to be maintained. There is a greater floor area to be swept and cleaned, more windows to be washed, more refrigeration employed in air conditioning than is necessary, excessive insurance required. It all looks very pretty—and adds up to a pretty penny of overhead cost by the end of each year, a fact so far obscured by the seller's market which the company has enjoyed for over four years. This is a prime example of the showcase approach to production. What has been achieved is not efficiency but a plant at which the officers can point with false pride—and can boast about at the club.

There are dozens of "modern" factories in this condition. A lot of them have been acquired cheaply from the War Assets Administration and others at almost no cost under Emergency Facilities regulations. They were put up hastily to conform to a pattern of wartime production in which cost of plant and product were secondary in importance to volume of wartime output. In a peacetime economy, many of them have no place at all or, if they are to be operated, need a lot of the pretty features knocked out of them and a concept of maximum production per square foot of floor space and cubic foot of internal dimensions to be injected in their place. Cheap in original cost, many of these plants are turning out to have been very bad bargains.

The author has pondered upon the astonishing increase in employment following the war and upon the fact that America's physical volume of production has not kept pace with the increased number of people at work in

industry. He is not satisfied that the explanation lies in any weakening in morale of American working people. He thinks it possible, in fact, that many managements have grown lax over the question of supervisory personnel and of overhead in general. Too many people are working at nonproductive tasks. Perhaps this would not have occurred if taxes had not taken away from corporations so enormous a proportion of their annual earnings. Since they do, it is perhaps inevitable that more and more people take the view that "This doesn't cost me anything. . . . Uncle Sam pays for it." The answer to that was given by one industrial leader when approached during the war with a proposal which, it was pointed out, would cost the company but ten cents on the dollar due to excess profits taxes: "That's not my idea of how to run a business. You're telling me that I only need to waste ten cents on the dollar. I say, I don't need to waste anything." A little more of this sort of spirit would cut production costs—and selling prices—substantially.

Efficiency and Markets

Although engineering techniques calculate efficiency in nonfinancial terms, the ultimate test of efficiency in a money economy is measurable only in terms of relative money costs. The direct consequence of this, in ordinary business terms, is that the productive efficiency of a corporation engaged in mass production cannot be calculated without reference to size of market. Our tire companies are classic examples of this fact. Those conversant with the industry are sorrowfully aware that whenever demand shows signs of slackening, the prodigious overhead costs

in the Akron plants cannot be made to decline proportionately to the decline in volume of output. Consequently, although the efficiency of the men, machines, and methods employed is potentially no less during times of receding demand than during times of boom, the rapidity with which overhead costs mount proportionately to total costs gives a deceptive appearance of inability to control general charges.

What it ought to teach us is something quite different. It ought to impress upon us the fact that venture capital in the mass production industries requires, for its own efficient use, markets large enough, in terms of physical quantity, to compensate not merely for the direct costs of production but also for the enormous costs of depreciation, amortization, interest, supervisory expenses, and the like. Since these are not cost factors on the production schedule but must nevertheless be apportioned to each unit of output, it necessarily follows that the larger volume of output required for overhead to be an inconsiderable factor per unit, the more must overhead weigh upon each unit of output as volume dwindles.

In making external checks upon production efficiency, it is therefore inadvisable to consider the matter solely from the cost schedule per unit of maximum output. Maximum output may or may not be the general condition under which the corporation works over a period of years. It should be commented here that if maximum output from a mass production company is achieved both during times of industrial boom and times of generally slack trade, then self-evidently the full potential market has not yet been tapped. All that has been attained is production

equivalent to maximum demand during relative depression, enough grounds on which to condemn any management if industrial progress is to be one of our measuring rods. Instead, estimates of management must reflect the past and probable future volume of the corporation at separate stages of the trade cycle. It is not the lowest unit cost under the finest conditions of demand which measures the efficiency of a mass production firm. It is the average cost per unit of actual output taken over the whole trade cycle and considered relative to the cost schedules of competitors.

Let us illustrate by a concrete example. One nationally known mass production firm was losing money heavily in 1933. Its competitors likewise were suffering heavy losses. Like its competitors, the company was then pricing its product at \$40 per unit in the domestic market, a markdown of about one third from its average price. It had no foreign market to speak of. Realizing the imperative need to increase volume, and scheduling overhead at various percentages of rated capacity, the management came to the conclusion that an export market at even substantially lower prices might so generalize overhead costs as to pull the company out of the red. Argentine buyers were offered a one-year contract, at \$24 per unit, for a quantity of output which, added to the existing rate of operations, was calculated to be enough to generalize overhead costs. The offer was made on an all-or-nothing basis. Either the entire amount proposed had to be accepted at this rock bottom price, under noncancellable contracts, or the contract would not be signed.

Upon the contract being signed, the company's compet-

itors predicted that the firm would be bankrupt within two years. If, they asked, producers were losing money at \$40, how could any firm avoid losing even more when selling a large part of its output at \$24? The estimates of the management, however, proved accurate. The Argentine contract raised operations to a level sufficiently above break-even point for overhead to be completely absorbed and for a modest profit to be shown during the following twelve months. Competitors continued to report losses.

The interesting point in this example is not merely that the management saw so clearly the basic nature of production costs in a mass production economy, but that its competitors, all large ones, completely failed to do so. Had this management tried to sell its products in a domestic market at \$24 instead of \$40, the effect would naturally have been very different. Every unit of its output would then have had to sell at \$24 and a dreadful mess would have ensued. But selling it abroad in a market which it did not wish to retain permanently and in which it met no specifically American competition, it managed to negotiate a mass sale at a price which compensated for basic costs plus enough absorption of overhead for the company to meet its over-all expenses.

What this management achieved was economy through volume. Another example occurs to the author.

Hunt Foods, Inc.

Hunt Foods, Inc., in 1943, changed over from a policy of selling largely under private labels to that of its own brand. It did this in order that its products would become so familiar to the public that volume could be built up.

The present management had its eye upon national markets and upon transforming the company from a small operator to a large volume producer. The results, not only upon sales but upon production methods, economies of operation, and even upon the structural form of the business, can best be told by quoting the historical recapitulation contained in the 1947 annual report to stockholders.

One method is that known as "packer's label." By this means the manufacturing company markets its finished goods under its own name and label, creating thereby a product for which the company can develop consumer recognition on the basis of its own identity.

The other method is that which is known in the trade as "private label." With this type of marketing the manufacturing company packs its goods to carry the label of wholesale buyers. A large portion of the industry's production is handled in this way.

Before the entrance of the present management in 1943 Hunt had sold a substantial amount of its output under labels of other distributors, and the Hunt Red Label, which had been developed for over fifty years actually carried less than five per cent of the Company's annual pack. The Company's products had a fine reputation for quality, but its brand name was not well known to retailers or to the general public.

Despite the widespread practice of private label marketing, long experience had shown your management that control of one's own name and its distribution is vital in building solidly toward a food company of important size. Food companies with nationally advertised brand names have historically enjoyed relative stability of sales and earnings, due to the fact that they are in a position to develop and sustain consumer loyalty on a long-range basis.

The management felt that growth along these lines would

be logical and constructive and so in 1943 adopted the policy of packing virtually all products under Company labels.

The shift to the packer's label policy paved the way for many great changes.

It permitted the introduction of ideas aimed at streamlining packs and manufacturing processes. Purchasing of cans, cartons, labels and other supplies became simplified. Production itself evolved toward a conveyor-line technique. For the first time in the history of Hunt, raw products could enter one end of a plant, and finished goods—packaged, labeled, cased and ready for shipment—could come out the other. Custom-made or special can styles and sizes were largely discontinued. Operations were concentrated in larger plants, and the Company allocated to plants most adaptable those products which could be most expeditiously produced there.

In order to maintain the high quality of the Hunt brand in large-scale production, the quality control department was enlarged. Increased laboratory facilities were installed in important plants. Moreover, where the Company had previously purchased many raw products through brokers, it now expanded its own field department to handle the bulk of the Company's purchasing and to maintain many permanent field men constantly in touch with growers and their problems.

The necessity for a large market to be achieved before truly mass production methods can be adopted is amply demonstrated in this instance. We see likewise how necessary the conveyor system becomes once operations reach a size at which standardization is possible on a large scale. Whether the mass market precedes mass production or vice versa is a question as unanswerable as the classic one about the chicken and the egg. The reality is that mass markets and mass production methods interact upon each other, making maintenance of the market essential if mass production is to prove economical but making mass pro-

duction methods necessary if that market is to be served economically.

We are dealing, then, whenever we consider mass production techniques, with many factors which lie outside the specific realm of industrial engineering. We may even encounter the situation where a production line, set up to meet an expected volume of demand, may prove inadequate to serve the market actually realized. This situation is no happy one. For inadequacy of facilities may require their premature abandonment if the market is to be fully met and if ample plant capable of operating at the optimum production rate per man hour is to be operated. Not all mass production plants are capable of simple enlargement. Nor is the conveyor system always sufficiently flexible to meet demand considerably above the anticipated maximum. Night shifts and overtime operations are an unsatisfactory answer, especially where it becomes obvious that the realized demand is permanently greater than had been thought possible. Such modes of stretching-out production involve extra wage payments per hour of labor performed and an unquestionable decline in productivity per man as abnormal fatigue sets in.

Underestimation of the market may therefore lead to early abandonment of plant and to its replacement by larger facilities capable of meeting a larger market. To this extent, failure to gauge the market may result in a capital loss representing wastage of unwisely expended labor and materials. It should be obvious, then, that in the determination of relative efficiency, financial factors possess a primacy completely denied them by the engineering fraternity.

Hunt Foods, Inc. grew from sales of \$4,400,000 in 1938 to sales of \$46,277,000 in 1947. In this specific instance, it was the increase in sales which made the introduction of the conveyor belt technique feasible. It was not the conveyor technique and a consequent improvement in the company's competitive standing on a price basis which made possible the increase in sales. Initially, this was achieved through mergers. In 1943 Hunt Foods, then known as Hunt Bros. Packing Co., purchased from Val Vita Food Products, Inc., its entire properties, good will, and trade marks, other than its can-making business. In 1946, the company bought the entire capital stock of Fontana Food Products Co. and slightly less than one-half interest in the Rocky Mountain Packing Corporation of Utah. After adopting the present name in 1945, the company absorbed the California Conserving Company, Inc., of Nevada. Guggenlime and Company was acquired by Hunt Foods in 1946, as was a 43 per cent stock interest in the Harbauer Company of Toledo, Ohio; the entire assets of Peterson Trucking Co. of Hayward, California; and the majority of the remaining outstanding stock of Rocky Mountain Packing Corporation. In July, 1946, Fontana Food Products Co. and Knight Packing Company, both wholly owned subsidiaries of Hunt, were dissolved and their businesses taken over by the parent corporation.

Thus, what happened in the case of Hunt is what happened so commonly in the early twenties when mass production first began to make itself felt. The first step was that of merging the facilities of a number of separate corporations, hoping thereby to eliminate duplication and to concentrate activities upon the most promising divisions

of the new joint enterprises. Size had thus to be attained artificially before mass production became possible. The known initial market at the outset of the new venture was at least equivalent to the collective sales which the separate corporations had had in the past. Standardization of products and brand name then followed. As consumer acceptance of the branded and standardized product then developed, it became possible—and necessary—to change the whole method of production, the degree of integration of the company's operations, and the general managerial concept. The company's corporate finances and the market for its products had each to reach a stated size before introduction of truly modern techniques became possible or necessary.

This has not been the invariable experience of every mass production firm. In past years, numbers of our largest companies expanded facilities to achieve lower unit-cost mass production methods and afterwards had to strive for a market large enough to warrant the investment involved. Ford, when he first introduced the assembly line technique in the automobile industry, was in exactly that position. It is to be observed, though, that misjudgment as to the size of market was hardly possible in this specific case. The market was already proven. The price-cost ratio alone was the imponderable.

There are more recent examples, among them, Fairbanks Morse and Aluminum Company of America. Both of these companies enjoy markets of known and growing size and have been for many years well enough financed to have been able, had they desired, to introduce the conveyor or its equivalent in all departments where it was

mechanically feasible. It is only in recent months that each of them has fully mechanized its foundries, a transformation in industrial method considered physically impossible until recently. In these two cases, as in many others, the industrial techniques required for the mechanization of complicated processes simply did not exist in satisfactory form in past years. The need for those techniques was obvious enough. Even so, and even had the techniques been known, they would not now have been introduced unless the foreseeable markets obviously warranted them.

Technology and Competition

The public statement by the National Military Establishment Munitions Board should give all managements pause for thought. Discussing "Allocation of Private Industrial Capacity For Procurement Planning of the Armed Services," the munitions board stated that in 1947 there were in the United States 86,000 plants "of recognizable size and productivity." In preparation for possible industrial mobilization, the board announced that it planned ultimately to contact between 22,000 and 25,000 plants representing roughly 90 per cent of the total capacity.

Let us reflect upon this for a moment. Out of 86,000 plants "of recognizable size and productivity" in this country, 25,000 represent 90 per cent of the total productive capacity so far as munitions and materiel are concerned. The remaining 61,000 plants collectively constitute no more than 10 per cent of the output potential. No clearer demonstration could be given of the destructive effects of the introduction by large producers of assembly line

methods upon the relative importance of the smaller firm. Given the same general type of product and the same market within which to compete for sales, the non-assembly line producer can almost never withstand the competition of the conveyor belt operator. At best, he becomes a marginal producer capable of highly profitable operations during times of unusual demand but incapable of operating competitively in bleaker periods. The tendency, therefore, is for such companies to give up the struggle and to concentrate upon products which do not lend themselves readily to assembly line methods or to high degrees of technology.

As a result, there is fair uniformity in productive efficiency among our leading mass production companies and, by comparison, a deplorable lack of efficiency among many smaller operators. The fact that their products are not yet considered capable of assembly line production itself speaks of the prodigious wastage of human effort which goes on in such companies. The claim is often made that precision is necessary in the productive processes of these corporations and that, because so much depends upon every single operation, production is necessarily a slow process. In airframe construction, for example, where a company's product may be priced at a million dollars or more per unit, a serious error at any stage of production could result in huge unrecoverable losses.

This is obvious enough and requires no elaboration but what it implies deserves some thought. For if demand per unit is low and if production is consequently scheduled to an almost minute market considered in non-dollar terms, quite obviously there can be and need be no mass produc-

tion. We thus come to the essential fact that it is only where the market is small that the firm operating without an assembly line can turn out work as efficiently and as cheaply as that employing a conveyor. Once the market expands sufficiently for the conveyor to operate economically, there is no place whatever for companies unable or unwilling to introduce it.

The time may come when airplane design becomes sufficiently standardized for genuine mass production to develop. The Douglas DC3 has been the nearest approach to standardization we have had thus far. With the decline of the DC3 and the development of Stratocruisers, Constellations, Convairs, and 2-0-2's, competition within the industry has prevented the emergence of a truly standard type of plane acceptable to a large enough body of users for assembly line techniques to be adopted. If that situation should change, if standardization should grow, and if the market should therefore be enlarged sufficiently, it is possible that only those airframe constructors employing such techniques would be able to survive. It is predictable, in fact, that in the field of commercial aviation such a situation will ultimately develop. If—and when—it does, there may then occur the same economic lopping of heads that took place in the automobile industry between 1920 and 1930. Does the reader recall the Marmon, the Auburn, the Willys-Knight, the Reo, or the Veelie?

Already there are evidences that assembly line techniques are being introduced in directions which even three years ago were thought impossible. It is being done in watches—a trick we have learned from the Swiss—and has now entered foundry work for the first time. This

means, however, that aggregations of productively employed capital are growing even larger than in the past. At one time a fender die in an automobile plant cost from \$25,000 to \$50,000. Now, with larger and more complicated fenders, a fender die may cost from \$200,000 to \$300,000. Only the company capable of making an investment of that size is capable of stamping out fenders at a cost which the market can bear. By inference, therefore, only the large aggregations of capital can meet competition in the field of the mass market. If this statement is not completely true it is only because big industry has not yet turned its attention towards many of the smaller articles in daily use and therefore has not yet brought to bear upon their production costs the socially beneficial effects of labor saving through increased investment in fixed assets of high technology.

We thus come to our final point that, outside the field of the highly special product the efficiency rating of the small firm is at all times questionable. The perpetual threat exists that larger corporations, or mergers which could create a large-scale competitor, may introduce or make possible the introduction of assembly line operations where they do not now exist. Therefore, unless the volume of sales of the average small company is progressively increasing it must be presumed that its foreseeable market will not make possible the introduction of mass production methods. Unless sales are growing rapidly, in other words, no fundamental transformation in the small company's production methods is really possible. It is in the "growth company" that eventual economies of substantial proportions can be hoped for. The small company whose

sales are not growing is not moving towards an efficiency rating so far above its competitors that further sales growth becomes almost automatically guaranteed.

This is an inversion of the ordinary view of the matter. Efficiency men usually claim that the small company which cuts costs through introduction of new techniques will gain competitive advantages. Conceded. But there is little to prevent its competitors adopting similar techniques and maintaining a competitive status quo to all intents and purposes. Techniques are no mystery. Only those companies inadequately financed need necessarily fail to introduce new forms of them. Equally, however, only those companies which from superiority of salesmanship and product development, better advertising techniques and, in general, more skillful and devoted management, are increasing their proportion of the general market, breed within themselves the possibility of competitive superiority through larger volume.

There is one more point to make. If concentration upon standardized items with high volume sales is attained through merger, then unless that merger leads to such substantial economies in costs and therefore in selling price that a secondary increase in sales occurs, the merger has been either ill-advised or mismanaged. Once volume is possible, a major part of the saving in production costs resulting from volume operations must be passed along to the consumer in order that any part of them may be retained by the producing firm. Unless a better product be sold to the public for the same price, or the same product at a substantially lower price, the competitive advantage of the large corporation can quickly vanish.

An attempt to hog the advantages gained through volume operations constitutes blindness to economic fact. Society is an evolving organism. Its units evolve under pressures and stimuli of all kinds. Under the competitive system, the company which is not making progress competitively is not standing still but is losing ground in the race. Those companies which recognize cost reduction as an opportunity for price reduction, and price reduction as an instrument towards improvement in competitive standing, are the companies which make progress. Those among them which do not regard price reductions as the prime and continuing purpose of cost reduction will, over the longer term, gain no benefit from their technological improvement. Their change in technique is already aborted.

XII

Research

WHEN deliberation, control, and coordination have been introduced, research assumes the character of program. Only after it has assumed this general form is it possible to delineate precisely—with all the implications of budgetary appropriations, establishment of facilities, and the harnessing of human energy—the exact lines to which inquiry shall adhere and the amount of effort, time, and money which shall be channeled into it. Lacking these characteristics, research may still prove fruitful. It may be purposive yet it cannot be harmonized with purpose broader than those which single individuals, working separately, can attain.

To convince ourselves of what research so coordinated can achieve, let us review the means adopted by Germany to overcome the economic deficiencies which embarrassed her between the two great wars. Within her borders and among the neighbors she dominated were shortages of petroleum, inadequate supplies of steel and iron, no cotton or natural silk, a scarcity of wool, no natural nitrogenous fertilizers, no rubber, insufficient grains for human con-

sumption, no cane sugar, few animal fats or greases, no coffee or tea. Optimists outside the German periphery exulted during the thirties that the Reich could not wage war since she lacked the essential raw materials and the foreign exchange with which to buy them.

Yet it was only a few years before the word *ersatz* insinuated itself into all languages. Ersatz flour, ersatz coffee, and ersatz tea became staples of the German diet. Nutritional sweetenings and flour substitutes were developed from sawdust and vegetable waste. Artificially incaffeinated coffee substitutes were produced from acorns. Germany's lack of natural rubber was compensated by the production of synthetic. Plastics displaced wood in many uses. Structural steel was economized through the use of aluminum and magnesium, neither of which are encountered in metallic form in nature. Nitrates, the inmost heart of both the modern war machine and the fertilizer industry, were extracted not from the ground but from the air. Rayons and other synthetic fibers substituted for cotton, wool, and silk. Glass piping was introduced extensively to serve for scarce and militarily indispensable iron. Petroleum, the most precious of all the products of the earth in this age of automotives, was obtained in ample quantity through the synthesis of coal.

Disregarding the savage ends to which Germany devoted these fruits of her planned research, the substitutes she developed for materials which did not occur in nature within her territory form the first distinctively modern chapter in the story of man's conquest over nature. The spirit which dominated the German science—that there was no scientific barrier which could not be crossed, no

natural deficiency which could not be compensated by planned research to that end—marked the first time in human history that the intellect and ingenuity of an entire nation was called upon to relieve, by scientific substitution, a people from almost total dependence upon natural materials monopolized by others. It likewise marked the definitive point of departure between the highest elaboration of primitive industry and the categorically differentiated age of chemistry, a fact which Germany's present—and presumably temporary—occlusion from the world's stream of commerce and industry now obscures.

It is of interest to recall how, before the certainty of the coming of war had grown generally realized, men already were bemoaning the consequences of Germany's then apparently uncalled for development of synthetics. Economists of all countries claimed that these were part of a destructive "autarchy." What they should have said was that their conception of a world market in which raw materials garnered on one spot on the earth's surface exchange, as though by inflexible law, for finished products fabricated at some distant point, was already outmoded. But they saw it only as an artificial interruption of the multilateral system of trading and a temporary lessening of the interdependence of nations. The political consequences of such developments were obvious enough. Statesmen and their advisors tried to escape them by discouraging the substitutive industries. In doing so they set their faces against the inevitable. They failed to grasp—as most of us still fail to grasp—the break in historic continuity which the coordinated researches of German science had brought about. An epoch had died.

If, fifteen years ago, misreading the signposts of science could lead statesmen into error, can it be expected that business leaders who similarly misinterpret the trends of our time can evade the consequences of their misjudgment?

Evaluation of management in terms of the research work which it fosters reduces itself to this question. A management either has perceived the trend and has adjusted its activities correspondingly or it continues in its conservative ways, leaving research, with all its rich prizes, to others. In so doing it condemns the enterprise under its control to a slow but very sure death.

For no management, no matter how well entrenched it appears to be, can immunize itself against the effects of successful research and development work performed by others, including that undertaken by its customers. The research achievements of a main supplier have an immediate bearing upon the products and policies of all companies which associate with it in business. Developments resulting from lines of inquiry pursued by customers can alter overnight significant trading relationships between customers and suppliers. All important innovations create secondary needs and secondary developments which only the company progressive in technique—using that term in its all-inclusive sense—can hope to satisfy or to supply in full. Research, in short, once it has become generalized as an industrial norm, has the effects of a chain reaction. Each company must be very sure that it continues to be part of the chain.

The steel industry bears witness to this. New alloys are constantly being created in the nation's metallurgical

laboratories. Once they are created, they establish not only new uses for themselves but new demands upon those who supply the steel companies with the materials and machines they employ. Take, for example, the case of a new steel of super-hardness, such as the boron alloy. Once it has been developed, new cutting tools must be devised to handle it in the lathe. Gases capable of producing a satisfactory weld are required. If these gases burn at so high a temperature that existing torch nozzles melt in the heat, still newer alloys must be created in order that the super-hard steel may find its way into industrial use. If the new gas proves adequate, but the current demand for the new steel is so low as to preclude economical production of the gas, it may be necessary for the gas producer itself to experiment and to find new uses for the metal in order that his own market may be enlarged. The steel producer in turn may suggest new employments for the gas in order that the cost to himself, under conditions of increasing volume, will not prohibit its use to him.

At no point could one assert that a clear line exists between the "proper" research activities of one company or industry and those of others. Their boundaries overlap too frequently; their common grounds of interest are too numerous for final differentiation to be possible. It is because their separate works cohere into a common endeavor that experiment in one direction requires complementary developments by others.

Mr. Kettering of General Motors invented the self-starter. Without that self-starter, the supermarket could not have come into being. For it was only when the muscle work had been taken out of starting an automobile that

women were freed from the need to have their husbands crank the car. Only when women were so freed could shopping by car become the common American way to go to market. Only after women drove their own cars to market did they become physically able to transport bulky, heavy packages of groceries over the long stretches to American suburbs. The causal relationship is intimate, yet it does not stop there. For the growth of the supermarket has created the need for new forms of bulk packaging of items which once were sold separately or weighed apart for each individual customer. It has aggravated the economic problem of spoilage and waste in some directions and has led to intensified experimentation regarding surface sealing of perishable foodstuffs as yet incapable of prepackaging under vacuum. In the case of coffee, it has fostered research towards vacuum packaging in cellophane or kraft paper. In turn, this has urged producers of food machinery to work more intensively on the general problem of air exhaustion.

It is not suggested that Mr. Kettering is directly responsible for all this. The truly significant fact is, that once his unique contribution to automotives had been made, the pressure of demand for changes and refinements in thousands of industrial and commercial processes built up progressively. The self-starting car made the self-sealing package an outright necessity, not because of any direct relation between the two but because of the secondary effects which each had upon our way of life.

So rapid is the pace at which innovations are now made, and so readily does the American consumer accept new products as indispensable to a full life, that one could

almost estimate the quality of a company's management by the percental relation of new products to a firm's gross sales as compared with, let us say, fifteen years ago. The question then arises as to what constitutes a new product. It becomes a pointed question when applied to specific companies.

In the case of Union Carbide Corporation, the sale of oxygen is no novelty. Nevertheless, Union Carbide's increased sales of this gas does represent genuine new product development, not a mere extension of market for a familiar item.

Until recent years, the company distributed its entire output of oxygen in steel cylinders. The weight of the cylinders was such that, beyond a given area, transportation costs exceeded the value of the material sold. This imposed economic limits beyond which transportation became uneconomic. In turn, since markets had to be supplied, this involved construction and operation of numerous small and scattered plants with all their inherent problems of multiplicity of management functions. The oxygen business was therefore one whose ratio of capital investment to quantity of output displayed few of the economic merits of high volume. The more numerous the markets, the more numerous the plants. That was the inexorable fact.

This state of affairs remained true only while the gas was transported in that form. The problem was to find some other way to transport it, an apparent impossibility whilst the gas remained a gas. But need it remain a gas? After long experimentation, the company contrived a railroad car capable of conveying liquid oxygen. It was

thereafter possible for distant markets to be served economically from a few giant producing points. Bulk distribution then opened the door to a number of important new uses, more particularly in the steel industry. The introduction of batteries of oxyacetylene torches to burn the scale and crust from hot steel billets as they emerged from the mill could not have occurred until the problem of economical transportation of oxygen had been solved. Once it had been solved, it made possible economies of as much as fifty cents per ton of billet steel in some steel mills.

Yet Union Carbide's problems with oxygen were not completely settled in this way. Cheaper transportation having been made possible by liquefaction, the steel companies themselves began to experiment with still new uses for the gas. The latest development is its use as fuel, as a supercharging element in the open hearth and the blast furnace. The economics of this new use again demanded a reduction in transportation charges. This time, the answer was to eliminate them entirely: Oxygen production plants are now being built by Union Carbide in close proximity to the furnaces of certain steel producers, the gas to be piped directly into the furnace when the new plants are in operation.

The question arises: which was the new product? Was it the liquefaction of the gas for industrial consumption? Or the newly devised railroad car in which it was transported? Or is it the new capital installation and the idea of piping oxygen as coal gas is piped? The answer must be arbitrary. For all practical purposes, although oxygen is still oxygen, the liquid oxygen made available for com-

mercial use was a new product. The piped gas, because of the difference in its mode of conveyance and the quite distinctive use to which it is being put, must be regarded as a new product. The railroad car is a new product to the builder who cooperated with Union Carbide in perfecting it.

It becomes obvious, therefore, that judging the quality of a management by the fruits of its research work involves a whole series of quite arbitrary assumptions and requires flexibility in definition. Appraisal must be more tentative than quantitative. Yet a close enough feel of the spirit which animates a management can be grasped, even despite the arbitrariness of the assumptions employed, for inquiry into the amount of research performed and the nature of the research program to serve us as an index of managerial worth.

What Is, and What Is Not Research?

What do we mean by research? Many companies claim to be making expenditures on research far beyond the amounts they actually do spend for that purpose. Certain executives with whom the author has recently consulted claim that their companies are spending from two to three cents of the sales dollar on organized research. In some cases investigation has shown this to be the case. In others, and without the top executives being aware of the fact, it simply is not so. The executives are deceived as to the amount of their research expenditures because they are deceived as to the definition of the term.

One company, for example, reports the cost of its research program at 2.3¢ per dollar of gross sales. This

compares with 1.9¢ in 1939, and should suggest that the company is now doing more research than it did prior to the war. Yet the facts are the contrary. What has occurred is a simple shifting of budget appropriations. Items which in prewar years were accounted as cost of sales and which constituted a continuous investigation of markets have now been embraced within a so-called research program. These items totalled about 0.9¢ per sales dollar. In addition, aptitude testing of employees and the cost of scholarship assistance in the physical science departments of the local university have been placed under the so-called research budget. Other expenditures, including some incurred in the practical solution of plant problems which ordinarily would be considered part of the mechanical costs of operation have been dignified with the title, "Research."

They are unworthy of such a title, do not constitute research, enjoy no independence from the production process, have none of the attributes of continuity, and have not resulted nor can ever result in the development of a single new product or the substantial modification of an old one. This company is simply going through the motions of expanding its research program, has bestowed upon one of its junior officers the title of research director—as well as public relations director and director of personnel—and honestly believes that it has somehow magically become progressive.

Let us contrast this with a genuine research program conducted by a company aware both of the meaning of the term and of its enormous importance. The B. F. Goodrich Company has established the B. F. Goodrich Chemical

Company as the development, manufacturing, and marketing agency for the products of its research. The parent company operates central research laboratories whose primary function it is to evolve fundamental techniques in chemical engineering and secondarily to produce new intermediates for its chemists to work upon. In customary fashion, the central research departments operate pilot plants which make rough estimates of the production costs and chemical characteristics of proposed new products. The amounts produced, as is inevitable in any pilot plant, are small and therefore cannot provide close approximations as to operating problems, types of plant required, marketability, and the like. They go little beyond the superlaboratory stage and do little more than point out the broad path which more applied research must pursue.

It is after the pilot plant stage that the B. F. Goodrich Chemical Company takes over the research work. When a new process or a new material in the sphere of organic chemistry or vinyl resins has been studied by the central research laboratories and passed over to the chemical company, the new product or process is then thoroughly investigated at the Goodrich Chemical Company's Avon Lake Experimental Station.

At this stage in the program, the purpose becomes the practical one of predetermining all the salient chemical, industrial, and commercial facts regarding the new product which otherwise could be determined only pragmatically and perhaps at extreme cost by production on a full plant basis and by comprehensive investigation of the market only after substantial investment in plant and facilities have been made.

Intended to obviate such needless risks, the Avon Lake operation stands in intermediate relationship between the basic research laboratories and the ultimately intended plant. It creates in miniature the actual plant design which later is followed in meticulous detail when full-scale production is undertaken. This eliminates one of the greatest hazards involved in embarking upon a new undertaking on a commercial scale. The pilot plant, useful though it be and indicative as it usually proves of the general procedures which production must entail, is necessarily on so small a scale that the actual problems involved in full production are not encountered in it. Because of this, plant construction immediately following the pilot stage invariably leads to faulty installations and to unavoidable waste.

The semiworks link instituted by B. F. Goodrich Chemical Company at Avon Lake produces the new product and engages in the new process on a scale large enough for all the major subsequent problems to be anticipated. Consequently, once Avon Lake has completed its work, it is then possible for plant to be constructed with prior knowledge of exactly how to meet the difficulties which have arisen in the semiworks stage and which otherwise would arise only after a vastly expensive plant had been built. The difficulties and the wasteful expenditure they involve are eliminated before plant construction begins.

It may appear that this is a matter solely of application and that, in essence, it is a mere refinement of the continuous investigation into plant design which goes on all over the world. Actually, it occupies a different place in the scheme of things. In this instance the semiworks unit,

being concerned with chemistry and chemical engineering, consists of equipment which is highly flexible, both in large-size glass and various metals together with instrumentation which can be readily erected, added to, or torn down when the necessary data have been accumulated. With variations, additions, and subtractions, it is adaptable to the production of many different items. Thus, this one center can create the plant pattern for a multitude of products. In so doing, it overcomes one of the principal difficulties of past years, one from which most European countries still suffer. It makes it unnecessary for the unhappy experience of England and France, for example, to be duplicated in America. In those two countries, shortage of capital and consequent inability to assume the substantial risk of the construction of plant for substances the difficulty of whose production could only be guessed at, and the market for which had not been proven, left undeveloped many products capable of widespread use and already chemically known in the laboratories.

There is now in the chemical industry, because of this advanced experimentation pattern followed by Goodrich, no further need indefinitely to postpone investigation into the production problem and market aspects of new chemical discoveries. From the laboratory to the pilot plant and from the pilot plant to the semiworks constitute a long enough step from original research to practical application for the chemistry, and production and commercial attributes of a promising product to be thoroughly investigated. It permits this achievement without involving fear of undue loss.

It must be repeated that unlike pilot plant production,

output from the semiworks unit is in sufficient quantity for sound market evaluation to be undertaken. Potential users can test out the proposed new product in substantial quantity and over a long enough span of time for sound conclusions to be drawn before Goodrich makes a permanent capital investment in its production. There is nothing unique in this, except that it is now planned for every one of the items transmitted by the central research laboratories to Avon Lake. It has become, in short, a consistent, continuing, coordinated effort, which, over the years, should not only prove economical for the company but can be expected to bring into daily use chemical discoveries which otherwise might remain mere laboratory curiosities.

Goodrich's laboratories are thus encouraged to bring to the attention of decision-making executives suggested lines of inquiry which in past years would have been regarded as subjects only for college or university research. If the Goodrich pattern should be duplicated by the average corporation engaged in general research, the flow of new products to market in future years can be expected to accelerate enormously. At the very least, we can hope that we shall not again see such products as DDT lie undeveloped for fifty years on laboratory shelves.

At the height of a boom, industrial research devotes itself mainly to the refinement of production processes, to reduction of the labor time necessary to production, and to elimination of costs. There is little inducement during the upswing towards development of new products or to radical modifications of old ones. Scarcities of materials, the virtual guarantee of profits in most lines of endeavor,

the delays encountered in new plant construction, the unpredictability of costs, and the suspicion that things are not quite as sound as they seem, induce the average corporation to lay aside for the time being much of its basic developmental work. It concentrates instead upon accelerating the tempo of production in order that it may seize its share of the quite evident market. Research emphasizes economies of operation in order to offset higher wage rates and to compensate for the scarcity of labor.

Once the boom has gone the way of all booms, reduction of unit costs owes its genesis to other than deliberate planning. Marginal producers are driven out of competition. Companies find themselves of necessity concentrating upon their most efficient operations. These produce a condition of increasing returns and establish a trend towards increased efficiency. Unit costs decline as high cost operators are driven to the wall. Simultaneously, the labor market becomes competitive. Wage rates tend to sag, slowly at first, but with increasing acceleration if the depression endures and deepens. Costs come down almost without deliberate efforts to achieve cost reduction. Expenditures intended to facilitate research into cost reduction grow less necessary and are less enthusiastically adopted. The problem shifts from that of reducing costs to that of finding new markets. Appropriations veer towards new product development. Genuine research, therefore, finds its greatest stimulus in industrial distress.

This old relationship between research and the volume of trade is now changing. A total of \$500,000,000 per year is being spent currently on private research. This compares with about \$240,000,000 in 1940; \$116,000,000 in

1930; and \$29,000,000 in 1920. A growth in such expenditures from less than \$30,000,000 to more than \$500,000,000 in a period of twenty-eight years is the most significant industrial fact of our time. The entire industrial research project of the United States Government in 1940, including its experimentation on behalf of the armed forces, amounted to less than \$70,000,000 and in 1944, with the project then reaching its wartime peak, amounted to little more than \$720,000,000. Over the entire five years 1940-1944, the United States Government with all its wartime innovations, atom bomb included, spent little more than \$1,800,000,000 on research. Should the current rate of research expenditure for private industry persist for the next five years, the total cost to private industry over that period will be \$2,500,000,000, i.e., \$700,000,000 more than the United States Government spent in experimentation to arm the mightiest war machine this world has ever known.

From present evidence it appears that private research in the United States will become a \$1,000,000,000-per-year industry in the near future. The physical limits upon such research are imposed only by existing facilities, the rate of inflow of trained personnel, and the funds available to carry on the projects. Because of the magnitude of these expenditures, the prewar relationship of research to the trade cycle need not hold true in future years. The basic investment already made by private corporations in their research laboratories and equipment amounted in 1940 to \$345,000,000. The du Pont Company alone recently announced plans to make a fresh investment of \$300,000,000 for this purpose. General Motors has erected a \$200,000,000

research center. These two allied corporations alone have already added or are in the process of adding to the nation's basic research facilities more than the entire amount invested in this direction throughout American industry in the last prewar year.

The extent of these new investments makes it certain that, regardless of how deeply trade may dip in future years, research in future depression times will exceed both in scope and cost the research conducted by private industry in prewar years of prosperity. Instead of research being a passive element in the business cycle, the business cycle itself may be affected by the research to which American industry has committed itself.

The possibility is not remote nor is its relevance to the private corporation a matter to be treated lightly. If, because of the vastness of the research projects now permanently under way, profound and basic changes occur in this nation's industrial methods and interrelationships, then those companies which have not prepared themselves for survival through research will surely die. As examples, the development of the Haber process for the extraction of nitrates from the air ruined the Chilean nitrate industry, destroyed hundreds of millions of invested capital, and rendered obsolete an entire industry which previously had flourished. Silk was given the *coup de grâce* by nylon. Such facts cannot be brushed aside. None of us knows what developments are portending in the nation's private laboratories, nor can we predict what their effects will be upon the competitive status of individual corporations or whole industries.

Legend has it that the average corporation spends on

research each year between 2 per cent and 2.3 per cent of its gross sales. No convincing statistical evidence supports such an estimate; nor is there available sufficient data to indicate how much the average corporation does spend, intends to spend, or should spend for investigative purposes. If the validity of the estimate were all that was at stake, one could shrug it off as of no moment. But it is not. It has serious implications for the corporation embarking upon a research program. For if 2 per cent, or any other proportion, of sales be considered the unvarying optimum, it follows that the appropriation for research will rise and fall proportionately to changes in the physical volume and dollar value of sales.

Once this concept is introduced into the thinking of management, the whole point of the research program is negated. Projects whose budgets are scaled to sales cannot be scientifically conducted, are not basically sound and must be lacking in continuity.

The industrial research program needs to be divorced from the vicissitudes of business conditions. The laboratory engaged in basic research or in applied science but continuously threatened with changes in appropriations as sales statistics fall or rise, cannot perform its task with the detachment necessary to success. The research laboratory which forms an integral part of the main plant of a corporation meets the same difficulty. In both, the problem is similar. For scientific inquiry suffers from the interference and interruption of routine business problems. The worthwhile program, therefore, must be physically detached from the production plant and absolved from participating in routine investigations essentially mechan-

ical in nature. It must be freed from significant influence by changes in the business environment of the corporation, from the rise and fall of sales, from the shift from profit to loss or from loss to profit.

Industry by industry, proportionate budgets vary widely. It is calculated that the chemical industry spends about twice as much per sales dollar on research as other industries. One authority stated recently that \$4.30 of each \$100 of sales in the chemical industry was spent on original research. The statement is credible once we reflect upon the astonishing rate of change which the chemical industry is experiencing. As a matter of fact, the once reasonably clear boundaries between chemicals, drugs and pharmaceuticals, oil, rubber, and textiles have become so blurred that one can no longer tell where the chemical industry starts and other industries leave off.

Rayon, nylon, and other synthetic fibers have intruded into the textile field. The liquor industry produces lifegiving penicillin; the coal industry is producing petroleum; the petroleum industry, resins, rubber, and drinkable alcohol. The chemical industry has become coextensive with all man's productive functions. It is a natural consequence that the chemical industry and its ancillaries, now that their ancient boundaries have crumbled, should be engaged continuously in investigating the opportunities which science now presents to chemistry of intruding into ever new fields. Research expenditures are correspondingly high.

In this there is an obvious moral. The public would have no confidence in a chemical concern which failed to carry on extensive research. But why confine this point of

view to chemicals? The opportunities which science presents to chemistry of dislodging products now in common use, of intruding into fields until recently quite foreign to it, and of creating new means for advancing human welfare, equally await industries engaged in less exciting tasks. All that is lacking is that the nonchemical industries should duplicate the investigative enthusiasm of the nation's chemists. Given duplication of that spirit, progressive refinement of product is possible no matter what the industry.

What can be accomplished through coordinated research is shown by the recent discoveries in the field of hydrocarbons. It is calculated that in all forms of research in the United States, governmental and private, four hundred thousand people, approximating one per cent of the nation's manpower, are now employed. Of these, ten thousand are employed in hydrocarbon research alone, compared with virtually none twenty-five years ago.

A quarter century ago, hydrocarbons were almost completely unused as a source of synthetic organic chemicals. Today, 50 per cent of the synthetic organic chemicals produced in this country derive from hydrocarbons. Nevertheless, less than one per cent of the nation's hydrocarbon supply is as yet employed in chemical synthesis, 99 per cent being used as fuels, lubricants, etc. In short, one one-hundredth of the nation's output of hydrocarbon now supplies 50 per cent of the synthetic organic chemicals produced in this country. With the development of new catalytic agents, and with the petroleum industry's growing ability to impose molecular changes, there would seem to be no limits to the uses to which America's naturally

occurring hydrocarbons will ultimately be put. Quite certainly, this nation, with its known capacity for practical and commercial application of scientific discoveries, will eventually reproduce on a far greater scale the hydrogenation of coal upon which Germany based her wartime fuel supply. The nation's oil supplies are limited, and even natural gas, while still copious, is not infinitely extensible in quantity. The synthesizing of fuel oils from coal may someday replace their withdrawal from the earth in the form of liquid petroleum. It may eventuate that from the nation's natural gas and oil reserves will develop myriads of new products only distantly related to fuels whilst fuel itself returns to its ancient base in the coal beds. Such possibilities may be no more than possibilities, and not necessarily imminent ones. However, they already color the industrial horizon which our children will cross.

Research into Production Methods

In past years, it was not unknown for chief executives to inform their boards of directors that, as of a stated date, the price of their products would be reduced below cost of production and that it was up to the organization to work out some way to restore the profit margin without permitting prices to climb back to their old level.

Such policies often worked—for a time. However, the inherent risks were considerable and the strains upon production men heavier than they ought to have been called upon to bear. Moreover, the solution to the problem of costs was often made at the expense of ordinary work-people. The speedup and the stretchout, a tendency for the institution of incentive systems whose incentive was

more a threat of dismissal than a promise of reward, and as often as not an ultimate demand for a reduction of take-home pay were frequently the upshot. Costs were brought down but social tension was heightened and purchasing power was cut more rapidly than prices.

Today such crude empiricism is no longer necessary. Cost reduction is perhaps a more imperative necessity than at any time in our past but consistent research into production methods can determine both in what directions economy is possible and how to achieve it without producing undue stresses within the corporation or the general economy.

Among the outstanding examples of production research is that presented by the Division of Research and Development of the Timken Roller Bearing Company. The research and development division has been established in a separate plant totally detached from the shops. This in itself gives assurance that the project is intelligently conceived. Production research conducted in the plant tends to get bogged down in specifically nonresearch details. Routine production problems, perhaps of considerable difficulty but nonetheless routine in character and capable of being solved by competent production men and mechanics, tend to be moved over to the research department if that department is in too close proximity to the general operation. This is more especially the case where decentralization exists and where the costs of the research department are borne by the several departments on a hypothetical fee basis. In such cases, plant superintendents concerned with keeping their own costs low as reported in the periodic plant statement, too often overload the pro-

duction research department with matters which the superintendents should handle themselves at some expense of men, time, and money. The answer to this difficulty, a constantly recurring one, is to separate research into production methods completely from the production operation itself, to decentralize control of the research operation, and to establish a formal channel of authority through which are screened those problems requiring genuine research investigation from those belonging properly to operations.

It is precisely this that Timken Roller Bearing Company has accomplished. Its research division, separated from the shops, has been established to work on the improvement of machines, tools, and fixtures, to investigate the causes of recurring production problems, to seek advances in production method, to design new gauging and inspecting instruments, to set up new standards of measurement and thoroughly to test out new machine tools before operators are required to work with them.

The division was established in the midwar years, reflecting both the rapid multiplication of production problems which the war brought to the company and the new concept which it had gained as to how to solve them. During the war the project could not be brought into complete operation. It is now in full swing and, enjoying autonomy from all other of the company's divisions, is controlled by a special committee headed by Mr. Henry Timken, Jr.

Because reduction of physical friction is the service which the Timken Company performs for American industry and because efficient operation of bearings depends

largely on the quality of their grinding and superfinishing, the division concentrates much of its efforts upon the improvement of grinding operations and methods. The testing, selecting, and grading of grinding wheels and the working out of improved processes for wheel dressing are matters of primary concern. Within the project, cutting fluids and cutting tools are tested out on regular production work equipment. The whole of this activity takes place under strict scientific control and yields comprehensive knowledge regarding the advisability of proposed production methods, relative rates of production, tolerances, finish, and cost of production. Since this research occurs outside the production plant, it has become possible for the company to know in advance which of a number of contemplated methods are best suited for specific operations. As in the case of the semiworks Avon Lake Project of the Goodrich Company, institution of new methods and installation of new equipment for actual production occurs only after their characteristics have been learned and, therefore, with a prior guarantee of sound mechanical operation.

As a matter of fact, the Timken Company Research Division duplicates in part the form of activity which Goodrich has installed at Avon Lake. New tools and machines are tried out on a small lot, semiworks scale and are engaged in production as long and under circumstances as varied as could normally be encountered only in full plant operation. Delays in fitting new machines into a general production schedule are thus eliminated. Heavy costs incurred when new machines, living up to specifications, fail to come up to the unwarranted expecta-

tion of production engineers, are reduced to a minimum. The Timken procedure ensures that before machines go into operation in the plant they have been thoroughly tested and perhaps modified to suit the company's special needs.

One remarkable development has resulted. Methods of gauging through electronically produced sound have been developed in the company's laboratory, making it possible for blind persons to work efficiently in an operation which previously demanded the best of eyesight. Few of Timken's innovations have been quite so startling, nor need they be. It is enough to observe that, with operations outside the plant, the research division has been able to pursue inquiries upon lines which, if in close proximity to the plant, might have been discarded arbitrarily as impractical.

International Harvester Company is pursuing a concentrated research program. Its emphasis is upon perfecting manufacturing techniques. Housed in a war surplus plant acquired by the company, the company operates eight major laboratories mainly for technical and operational research, for training production personnel, and for advancing general techniques. Included in Harvester's research work is the beginning of scientific investigation into the techniques of management and marketing.

The Bird's Eye Division of General Foods Corporation is following the same trend. In the Bird's Eye Factory, miniature machines only one eighth the size of those in the production plant are operated under precise factory conditions to permit experimentation in blanching, pre-cooking, and deep freezing. Without such miniature machines, no experimentation would be possible other than

on a full batch basis. This would involve either the purchase of expensive equipment kept out of use most of the time or the suspension of normal operations in order that experimentation might continue. The third alternative, of conducting experiments only at night or over weekends, is too obviously undesirable to be considered seriously. Only the use of miniature machines operated under exact factory conditions can permit continuous research in this branch of food processing. Bird's Eye, by demonstrating the efficacy of this method, has contributed not merely to its own store of knowledge but has helped to accelerate the trend towards more scientific inquiry into products and processes.

New Products Demand New Products

We need quote only one example to show that developments in one industry, themselves the result of successful experimentation, create the demand for correlated developments in other lines of production.

Aviation has entered the age of jet propulsion. Therefore, the employment of new metals and alloys capable of operating at higher speeds under greater pressures and of withstanding greater temperature, has created a new set of problems in lubrication. This allied group of developments has created a demand for greases and lubricants of different compositions from those of the past.

It is worthy of comment that, according to military lore, Hitler's war machine bogged down in the Russian cold because its lubricants did not permit the heavy German armor to operate efficiently at the low temperatures encountered. They gummed up; bearing evidence to the

wide variety of performance characteristics demanded in these days of highly complex machines intended to operate under infinitely various conditions of temperature, pressure, and so forth.

The Texas Company has devoted its research to such questions. Its research work demonstrates conclusively how indispensable is scientific inquiry on the part of one company to successful new developments on the part of others. Near Beacon, New York, in the Hudson River Valley, far removed from the Texas Company's oil fields, there was established some years ago, in a disused woolen mill, the central research laboratories of the Texas Company. In these laboratories have been concentrated the research work previously done at Port Arthur, Texas, and at Bayonne, New Jersey. The work done in these laboratories has been so successful that Texas now plays the leading role in supplying lubricants for stationary Diesel horsepower units, locomotives, and railroad cars. The aviation industry and even the atomic research project consume its many hundreds of different lubricants in quantity. What is perhaps least realized is that almost all the products now sold by the company under the same brand name they carried in 1911, differ completely in composition from what they were at that earlier date. The average user of Texas Company's lubricants still buys them by name and probably does not reflect that they are entirely different substances from what he bought some years ago. Engaged in such product refinements and improvements and in the development of new items are more than six hundred trained technicians, industrial engineers, and administrative employees.

Without the work of such researchers into petroleum, modern modes of propulsion would long ago have met impassable barriers of heat and friction. Equally, of course, without the work of capable metallurgists, these modern modes of propulsion could not have come into being. These in turn could not have performed their function without the assistance of chemists, geologists, and all the myriads of men and women who devote their time to ever more meticulous study of the processes of nature. But in cold, hard business terms, there is another phase to all this. Without the work of its research staff, the Texas Company would have found itself operating in a limited market. Without the research conducted outside the petroleum industry, the market would have been still more limited. Research by many has meant markets for more.

Some Future Problems

Before we exult over this age of research into which we have entered, let us face one or two hard facts. The first is that the quality of the human material engaged in research is not improving. Human beings are not perfectible. There is no evidence that the personalities engaged in research today are in any way superior to the researchers of past generations. Their tools are better and their facilities more ample. The men themselves, however, show no marked advance other than in knowledge, much of it inherited. If the point seems of little importance, let it be reflected that not all the formal research establishments in the world can compensate for the dearth of men of genius. The original thinker and the original thought contribute more to human advancement and human welfare than all

the formalized efforts to make practical application of petty discoveries.

The issue is pertinent, for the rapidity of the spread of private research by corporations may threaten to create circumstances which could inhibit men of genius from working in the environments they need to develop themselves fully. As the commercial value of both basic and applied research becomes more fully known, the tendency may set in for private companies to outbid colleges and universities in the market for talent. Some of our institutions of higher learning already complain that the best young brains are being drained away from academic laboratories to commercial ones. If this be true, the consequences may someday prove grave.

First of such consequences might be a developing shortage of teachers which might lead to a shortage of well-trained college graduates. Perhaps more important, the quality of the men who remain in the academic world is an issue over which some universities are concerned and which private industry should ponder seriously. Outbidding the academic institutions for the best of their brains may result in momentary advantage to the individual corporation. It tends, however, through rank commercialism, to destroy academic standards and ideals, or at least to lower them by substituting for the thirst for knowledge a pursuit of immediate financial rewards.

If industrial research in this country is to continue to develop, it must make sure that it engages in no practices which might draw away from the universities and colleges the brilliant men needed to guarantee that university standards will remain permanently higher than those of

the research department of any single corporation, no matter how powerful or how wealthy it may be. Any other view would be not only socially unwise, but bad business. For to experience a stimulus in one generation through a sudden extension of research work but to injure the nation's academic institutions as a result of that temporary stimulus would cut off the flow of trained and qualified men needed to carry on that work in future generations. There is no substitute for the university. The corporation must not attempt to take its place.

There are circumstances, of course, which preclude the use of university laboratories in preference to those of the individual corporation. Foremost among them is the frequent need for absolute secrecy as to the line of inquiry being pursued. This does not imply such melodramatic cause for secrecy as was involved in the Manhattan Project. Rather, it means significant developments not yet in their patentable stage which, if even an inkling of them were to leak out to competitors, could lead to immediate duplication and could negate the practical worth to the company of all the work it had put in. Under those circumstances, the private corporation laboratory is obviously the place where the work should be brought to completion. In addition arises the question of tempo. It is not infrequent for a corporation to need to bring to full development work upon which it has been researching, in shorter space of time than could possibly be achieved in a university laboratory where efforts are normally less concentrated upon specific objectives.

With the exception of these two circumstances, which cover a vast ground, and with no intention of decrying

the private research laboratory, the author can call to mind no other category of conditions which would preclude the use by private corporations, through extended endowment, of college and university facilities. This thought should not be carried too far. It is not suggested that except where the need for secrecy and speed exists, all basic research should be assigned to academic institutions. Rather is it urged that accompanying the general increase in industrial research which is now taking place, the proportion of it conducted in the university laboratories should be increased.

Research as a Test of Management

One of America's foremost industrial chemists recently told the author that, "There is no such thing as an accidental discovery in a research department. What appears to be accidental comes about only because the research staff has been exposed to the possibility of such accidents occurring."

In other words, the unexpected, fortunate, and commercially fruitful discovery—such as nylon—discovered accidentally in the research laboratory, is made only because research is being conducted by men sufficiently aware of what they are doing to suspect the possibilities inherent in the unsuspected. But the quality of the management which inaugurated the research program, the quality of the research men engaged in that work, and even the quality of the research itself, would be in no way reduced if no such gratuitous and beneficent consequences were to follow. Should no new vistas be opened up and no new developments of startling importance present themselves,

the corporation's management and the research department's work might nevertheless be just as well conceived and just as faithfully carried out. Results, in short, are not the immediate criteria.

On the other hand, they are the ultimate criteria. Over a sufficiently long number of years, a research program must pay for itself either by new products which raise a corporation's net sales and profits or through economies in operations and processes which reduce costs. Free and untrammelled as a basic research program must be, it still must meet the test of being both self-sustaining and profitable over the long term. It must be regarded as a department of the corporation differing in no essential administrative respect from that of sales or any other division. The results of its work must make a contribution to the general corporate health substantially greater than could have been achieved through equal expenditures in other directions.

Yet if results are not an immediate criterion but are an ultimate one, at what point does the immediate become the ultimate? The question has often been posed but has never been answered satisfactorily. It never can be answered because the question itself presupposes that there are, at the outset of the initial research program, no clearly defined areas of investigation within which short-time results can reasonably be expected.

Such a viewpoint is quite in conflict with the usual facts. Research programs are not born out of thin air nor do they come into being because some chief executive decides capriciously that research is a good line of policy to follow. Such programs are usually inaugurated for definitive

reasons and to achieve limited but stated objectives, often within a stated period of time. It is out of the achievements of these limited objectives that the long-range program emerges. The entire character of the project is then likely to change. Let us quote a specific example:

Phillips Petroleum Company, rightfully regarded as the progenitor of commercial research into the chemistry of the light hydrocarbons, did not, in the first instance, embark upon research for its own sake. It began its research twenty-five years ago, shortly after the company had been founded, when it became necessary to gather certain technical knowledge necessary for the defense of a suit for patent infringement which was being brought against the company. Phillips Petroleum had acquired certain natural gasoline properties in 1917 and was then engaged in attempting to produce usable fuels from this highly volatile substance. In those years, natural gasoline, as yet unstabilized, evaporated so rapidly that the contents of a pitcherful of the fluid poured from rooftop height would be vaporized before the liquid could reach the ground. Poured into the gasoline tank of an automobile, the unstabilized natural gasoline would begin to evaporate before reaching the carburetor and, through causing a gas block in the feed system, would prevent the car from running.

The lawsuit extended over a period of years. The researches which it made necessary led to new lines of enquiry which ultimately enabled the company to overcome these defects. Quite incidentally they taught the company so much about the chemistry of the light hydrocarbon that it found itself almost automatically engaging in more complex fields, such as polymerization. Once it

had reached this point, the hunt was up. Research became an important function of the enterprise. New products, new characteristics, and new uses for old ones, new combinations of the constituent elements of natural gasoline and natural gas offered sufficient incentive for research to be continued and for it to be placed on a fully coordinated and departmental basis. As a matter of fact, Phillips Petroleum, quite independently of the Germans, was far advanced by 1940 in the development of butadiene, the synthetic rubber ingredient obtainable from the hydrocarbon butane. In both 1940 and 1941, the company undertook commercial production of butadiene for synthetic rubber. Throughout the subsequent war years, the Phillips system of production of butadiene developed into one of the most successful in all America's petroleum-based butadiene plants.

Most of this work, bear in mind, started out as the by-product of a lawsuit. Consequently, we are justified in asserting that even the finest research program need not start out as an abstract venture but may get under way to solve a specific problem within a specified period of time. It is as unexpected and unforeseen avenues for further exploration open up that the project moves upward out of the status of a mere venture to that of a coordinated, consistent, and integrated program definable as such. The search for an immediate benefit offers the possibility of more ultimate ones. As these in turn are brought into the realm of immediacy, they broaden still further the field of investigation and offer still more fields for exploration.

Managerial worth is demonstrated, before research has become a mere habit to the company, in the willingness of

an executive group to invest perhaps hundreds of thousands of dollars in what at some time must have seemed a speculative undertaking. Beyond the very limited aims which first cause a corporation to embark upon a specific form of research, nothing at all can definitely be promised as to the returns that can be reasonably expected upon monies so expended. The imaginative management is that management which, once the potential fruitfulness of a suggested line of inquiry has been even hinted to it, and before real promise of results can be given, does not stint upon its research expenditures.

In the case of Phillips Petroleum Company, 30 per cent or more of the company's net and gross profits derive directly from products which would not have existed had not the company, or some other company, first developed them in the laboratory in the process of general research. In the immediately prewar years it seemed probable that by 1950 more than 50 per cent of the company's gross profits would derive from such developments. But the war impeded basic research work and, as happened with many companies, delayed scientific investigation in many directions. Despite this fact, and despite all the delays and interferences which the war brought to the research worker, it now seems probable that Phillips Petroleum, in the not too distant future, will market a synthetic rubber superior not only to the wartime butadiene but superior in many respects to natural rubber itself.

It is estimated that the sales of the du Pont organization are now made up 58 per cent of products developed in the company's laboratories since 1928. Throughout the economy as a whole, according to the accepted estimate, over

80 per cent of all the goods now sold in the United States consist of developments and innovations made since 1880.

Since it is demonstrable that every corporation can increase sales through the introduction of new items deriving from original research work, the question of the rate of growth of newly developed products as a proportion of total sales, periodically calculated, is an important benchmark in appraising the quality of a management. If, over the life span of the research program up to any given point in time, the percentage of such products to the total volume and value of output has increased, it is fair enough indication that the management is sponsoring both basic research and its commercial application.

Equally important are the changes which occur gradually and almost imperceptibly in branded items with whose qualities and appearance the customers believe themselves thoroughly familiar. The average citizen, were he to compare every product he buys today under a brand name with that which he bought twenty or thirty years ago under the identical name, would be astonished at the changes which have taken place. Had these product changes—not all of them can be termed improvements—not been made, many still popular items would long ago have fallen into disfavor. Continuous modification of even the most familiar product perpetuates the value of a brand name, whilst enabling, through a slow metamorphosis, a quite new item to replace one commercially aging. This occurs more often than the public realizes, is a very deliberate business process, and involves continuous research. Changes in old products, therefore, as much the fruits of research as are original discoveries, constitute one of the

main benefits to be expected from a well-run research program. A second benchmark is thus established. For unprogressive managements, feeling themselves cushioned by the strength of the established trade position of their main items, fail sufficiently to modify their major sales lines and leave themselves easy prey to more imaginative, more vigorous, and more research minded competitors.

In purely practical terms, the final test of the already realized results of a research program resolves itself into the question of maintenance of profit margins. Once a patent is issued, there is nothing to prevent competitors from going to work on the same item and from establishing their own improvements and changes which, when the seventeen-year life of the patent has expired, makes it possible for them to engage in strenuous and often hurtful competition. In anticipation of such attempts at infiltration of the market which, through the force of competition, tend to reduce prices drastically and consequently to pare profit margins, the aggressive management is constantly on the search for new high profit lines to supplement the established business on which the returns always threaten to trend downwards. A number of smaller volume but higher profit lines can do much towards bolstering the general rate of profit in periods of growing intensity of competition.

Thus, the ultimate test of the private industrial research program is entirely commercial. This in no way minimizes the social value of the developments which ensue nor the keen intellectual stimulus to the nation as a whole which the stepped up tempo of commercially inspired private industrial research fosters. It says merely that in a money

system, where all material goods of social worth express themselves eventually in money terms, the occasional stroke of genius may produce immediate and spontaneous commercial results, but the long-term business health of an industrial corporation cannot be allowed to be governed by such whims of fate. The deliberate search for product improvement and change is the only means whereby the major corporation can hope to keep abreast of the times. Over a period of years, and always provided that the proper men have been engaged to perform the research work and the proper facilities placed at their disposal, the commercial results of research will be proportionate to the sums of money, the human effort and the managerial imaginativeness honestly expended in that direction.

XIII

Sales Management

CHANGES in the geographical distribution of population affect the regional demand for products of all descriptions. The alert company, appreciating in advance of its competitors that an important and permanent shift has occurred in the demography of its market, capitalizes on this realization.

A prime example is offered by Sylvania Electric Products, Inc. which, imbued with the concept that each regional market must be pressed up to its limits, sent one of its vice-presidents to the West Coast to investigate the potential market for Sylvania's products. This officer spent several months in making personal contacts, talking with bankers, businessmen, manufacturers, real estate people, chambers of commerce; in short, with everyone who could contribute to his fund of knowledge. He came away convinced that the growth in population in the West had created a potential market for the company's items even larger than the company had suspected.

What Sylvania officers did might have been done by others. They bestirred themselves to find out if a worth-

while market had come into being. Finding that it had, they embarked upon a concentrated advertising campaign in those directions in which advertising would do the most good. They even recognized, as many corporations fail to recognize, the importance of good public relations. Sylvania's regional representative joined all sorts of trade organizations on the Pacific coast; spoke at public gatherings of these bodies, on marketing techniques and industrial problems and made Sylvania Products a byword throughout Pacific coast industry. This concentrated effort occurred in a region in which the company's sales and advertising policies had in past years been desultory.

No accident impelled Sylvania to exploit this new market. Had its officers not begun to question the soundness of their policy of centralized selling, the company might not have grown sensitive to the market importance of demographic changes. It was because the company had begun to perceive the virtues of decentralization that its attention turned towards regional marketing. In turn, its success on the Coast then led to an extension of its sales decentralization. For Sylvania's purposes, the country has been broken down into 180 selling areas which have been grouped into 12 divisions. Within these divisions, the responsibilities and duties of divisional sales managers, merchandising managers, and sales research staffs have been resolved into two simple functions: To establish quotas which represent the absorbing power of the market and then to fill those quotas.

The consequence is that Sylvania now possesses one of the finest selling organizations in the world. Regional decentralization, with its necessary emphasis on making

sound estimates of the actual extent of the market within each region, then of subdividing this potential market into area quotas based upon peculiar local differences, and finally of resolving these into individual quotas for each salesman have produced a self-consistent sales effort. The company now tries to press its sales up to the suspected limits of the market in all parts of the United States.

Such reorganization would come to naught were it not handled properly by the proper type of men. Decentralization is no necessary virtue. Its merit lies in the opportunity offered every man to express himself completely within the confines of his function. Yet it calls for more "bearing down upon" than does the centralized structure. Otherwise, the spirit which animates the men at the center may not be reflected through every layer of the sales organization and decentralization can degenerate into chaos.

In fact, certain corporations after a number of years of ineffective decentralization, have found it necessary to restore to their central office functions previously performed regionally. This does not mean that their original decentralization was faulty. It suggests rather that the entire management group has become insufficiently aggressive in later years. The fault lies not in decentralization but in a breakdown in the managerial spirit and a lowering of company objectives. When this occurs, and especially if it has characterized a corporation over a span of years, it may be necessary to centralize in order to restore the aggressiveness indispensable to successful selling.

Philip Carey Manufacturing Co., under its present effective management, was compelled during reorganization to institute corrective centralization. In this case,

decentralization had become local autonomy inconsistent with horizontal policy. It had ceased to implement policy determined at the center or to adapt national policy to local peculiarities. There was no coordination between regional policies. They were not, in fact, policies in the proper sense of the term but were mere outgrowths of trial-and-error attempts at maximization of local markets. Instead of growing into a nationally coordinated sales endeavor, they had grown away from it. The sales and advertising effort had become ragged, illogical, and ineffective.

The problem facing the new management was not that of perfecting sales techniques on the basis of what had been done in the past but of introducing logic and consistency into the national organization and of implanting a sense of teamwork throughout the sales division.

Under the old administration, advertising had ceased to be knit to well-defined sales objectives. The choice of media, style, and content had become subordinate to local considerations. The new management, therefore, decided to treat sales and advertising as adjuncts of each other. This involved centralizing all advertising policies, with close cooperation between the advertising, sales, and product divisions and with the former seeking approval of the latter two branches before any campaign was embarked upon. Production objectives became integrated with sales objectives. The new advertising technique served as the connecting and invigorating link between both.

Before the new policy could be effectuated, it became necessary to discard the conception of sales organization which had animated—or vitiated—the old management

and to question the supposedly factual data upon which those policies had been based. It was discovered that much of this data was relevant to a much earlier historical period and that sales objectives resting upon their assumption ran counter to the actual condition of the market. The company therefore gathered and collated current data covering every phase of its marketing problems. The results demonstrated that past sales efforts and advertising methods had taken no account of economic change.

This observation caused the company to concentrate its advertising upon about one half the number of publications in which its copy had previously appeared. Strategic objectives were substituted for tactical coverage. The results have been fruitful. The advertising pull of strategically important publications in which a thorough job is done proved greater than the earlier unstrategic advertising.

This corrective centralization permitted strategic considerations to be reflected in the emphasis of the company's production, the direction of its sales endeavor, and its product and institutional advertising. Once this spirit of strategy had been injected into the picture, the entire sales organization became purposeful, vigorous, and capable of intelligent direction. The result is that Philip Carey's sales in 1946 amounted to over \$40 million compared with not much more than \$7 million twenty years before.

The Importance of Historical Consistency

An effective sales formula need not be the product of trial and error. It is more often the fruit of theorizing on the relationship between market and management. Those

managements who approach the subject from this angle become aware before embarking upon their project that the same loyalty which a revered chief executive earns from his subordinates must be earned by the corporation from the public. Appreciating this, the management starts out with fixed principles from which it will not depart no matter how tempting the temporary advantages offered if it but lower its standards.

Dealer loyalty is directly proportionate to the loyalty which the company feels towards the dealers. Company policy is prior in the chain of causation. The relationship between company and dealer is a personal one. The competent dealer is not overawed by the giant corporation. In his business dealing he meets human beings who may represent the giant corporation but who, to him, are ordinary businessmen whose word is good only if their companies will back up the promises they make. If the dealer knows exactly where he stands from the start and if he has confidence that the company will live up to every promise it makes, he can be expected to look upon himself and his supplier as partners in a joint endeavor. If that spirit of partnership can be generated and can be coupled with knowledge that he can offer a better product price for price, perhaps even a better product at a lower price than his competitors, his loyalty may become enthusiasm. Once this occurs, the basis for a surge in sales has been well laid.

It was thinking of this sort which inspired the National Gypsum Co. to go into business. When the company was founded in 1925 it offered the public the best wallboard that had then been made. Knowing it to be the best wallboard was, of course, not enough. That fact had to be

demonstrated to dealers and contractors before they in turn could be worked up to any pitch of enthusiasm about the product. How National Gypsum Co. spread this knowledge is pointed for our purpose.

Its representatives carried samples of the board to dealers and contractors, made their claims about its superior merits and then proceeded to prove it dramatically. They stretched lengths of their wallboard across sawhorses and asked the men they were trying to interest to go ahead and break them. The board could be broken, of course, but it showed itself resilient and resistant to fracture. When the prospect had actually broken the board, he was then asked to subject a sample of any other board he had in stock to the same test. The superiority of National Gypsum Co.'s board over those of its competitors was abundantly proven.

This settled only one part of the problem. The trade became satisfied that here was a better board capable of doing a better job, less liable to breakage, and therefore less subject to waste. It liked the product and was willing to go along with the company in pushing it. Despite this, had the company not been really salesminded, had not its officers, before they went into business under the name of the National Gypsum Co., thought out clearly just what it is that dealers have a right to expect from main suppliers, the merits of their product might not have provoked any real volume of sales.

The very virtues of the product could have frightened dealers unless guarantees were offered them. For if the new wallboard were as good as the company claimed, was it not logical that jobbers and big contractors might want to buy it directly from the plant, saving the dealer dis-

count? There would have been little to interest the dealers commercially if the real plums of business in their localities were to be handled by the company, leaving the dealers with the slimmer pickings of small orders. The dealers, in fact, would have suffered injury. They would have reduced the value of their dealerships in the older and inferior wallboards, would have helped to develop competition in the markets they wanted to serve and then would have been left out in the cold whenever sizable business was being transacted.

Because the original board was so very good for its period, the officers of National Gypsum Co. realized that it was all the more necessary to give the dealers blanket assurance that the company would never sell in competition with them. This policy was announced at the outset. The company pledged itself to sell only through legitimate dealers and not through jobbers or directly to contractors. Confidence was thus created in those early years.

Even then the problem of maximizing sales was by no means solved. Granted that loyalty and enthusiasm had been generated among the dealers, it still was not desirable that they, independent businessmen not subject to control by the company, should be permitted to miss out on large contracts in their localities because of their technical incapacity to comb the field thoroughly or because of their concern with business matters other than the sale of wallboard. Even in localities where the dealers "had the business sewn up tight" it was impermissible for them to compete for large orders on a price basis. That is, they could not offer discounts or rebates since this would violate the fixed price at which the company offered its board for

sale. Above all, no dealer could be permitted to accept quantity orders in his own territory for shipment at less than standard prices to areas outside those allotted to him and thus set up price competition between dealers in the same markets for the same product.

On the other hand, ordinary common sense dictates that large orders must be delivered at lower net prices per unit than small quantities. Also, the company must feel free actively to seek quantity orders. How to overcome this obstacle? The company did this by having its own salesmen cover the contractors and architects, draw up estimates as to price and endeavor directly to land such orders—in the name of the dealer. Quotations on these jobs are made not by the salesmen or the company but by the accredited dealer in the locality. The salesman thus becomes assistant to the dealer in securing large orders, the dealer drawing some part of his profit as a result of work performed directly by the company and not by himself.

The company lands these orders partly as a result of its own sales endeavor but indirectly because of the goodwill built up between dealers and large customers. Consistency in a company-dealer-contractor sales policy such as the National Gypsum Co. announced when it started in business obviates the need for such distinctions and removes a frequent cause of friction between corporations and those upon whom it is dependent for distribution. Over the short term the company may forego a slight profit. Over the longer term, it nets substantially more than it otherwise might and does so with a minimum of aggravation.

The question of pricing had still to be settled. If large

orders were to be sought, they obviously had to be competitive. The problem was how competitive they should be; what reduction was the bulk buyer entitled to and how much of this should the dealer bear? The answer is a logical one. It has been company policy that contract price shall be below dealer's stock price by the savings in warehousing, storage, handling, and shipping which bulk delivery makes possible. These charges would normally be borne by the dealer himself. His stock would occupy warehouse space and would involve loading at local freight points, handling, and examination by his own staff, and storage costs if his supplies were adequate to meet the largest orders likely to need filling in his district.

Direct delivery from company warehouses or plants to contractors' building sites eliminates these ordinary costs of distribution. The savings made are reflected in the company's contract prices. Upon such occasions sales are made at lower than dealers' stock prices.

In other matters National Gypsum Co. has been equally consistent. Since it is fundamental to its sales policy that no attempt be made to evade its responsibilities towards a legitimate dealer, it has steadfastly refused to sell products under a second brand name. It uses one name only—Gold Bond—for all the products which it markets. When the company acquires a new product, it proceeds at once to diminish market memory of the product's previous name and to reestablish it under the Gold Bond label. In some cases this can be done overnight, but in others, where the item has earned trade acceptance under its old label, the process is slower. In these cases, the name Gold Bond is first added to the established trade name as an adjective.

Then, over a period of time, as the trade grows used to seeing the Gold Bond signature, the name Gold Bond is slowly enlarged in type and the previous name reduced. Finally, when the trade has learned to refer to the item as a Gold Bond article, the old name is dropped entirely.

It might appear that intelligent pressure of sales effort could build as much goodwill for the new item under its old name as is achieved under the Gold Bond label. No doubt! But that fact makes such a policy undesirable. Were each new product acquired by National Gypsum to be promoted under some label not specifically identifiable with the National Gypsum Co., the door would then be open to secondary lines and to violation of the company's ethical relations with its dealers.

Even if this were not to materialize, it would be possible for suspicion to be generated that it might at some time occur. If a single dealer should overstock one item through lack of foresight and were to attempt to dispose of it by cutting price, the impression could be created that this product was now free—even if unofficially—from the one-price rule upon which the company insists. As things are now, National Gypsum's products carry a uniform label and any attempt by a dealer to clean out inventory through price cutting would point accusation at the delinquent dealer himself. Every company is aware that dealers are human beings and that a certain percentage of corner cutting is going to take place. National Gypsum's policy, therefore, is designed to discourage it, to free the company from unjust accusation if malpractice occurs, and to place the blame squarely where it belongs. This policy has never flagged despite a fierce price war and a grave depression.

Management of Distribution Costs

All producers of processed articles must sometime decide how they are going to distribute their product; whether through established wholesalers and distributors, or directly to retailers via the company's own sales staff. This decision is seldom arrived at pragmatically. If the decision is arrived at pragmatically and if the form of distribution thereupon undergoes a drastic change, the distributive methods previously employed must have been unsatisfactory for some time past. Or the independent channels of distribution themselves must have undergone such changes as to make necessary a transformation in the company's relation to them.

In most cases it is the company which has changed and which requires a corresponding realignment of its distributive processes. If this realignment takes place only after difficulties have been experienced over a span of years, the management is presumably unimaginative. If, on the other hand, changes in distributive techniques made necessary by a change in the general nature of the business occur simultaneously with or shortly after the need for it becomes real, the sales management shows itself aware of changing circumstances and pliant enough to adapt itself to them.

The excellent management alone is capable of such perception. The qualities of insight which so express themselves are among the ingredients of progressive management. Adaptation of the organic units of a firm to the changes in function which that firm assumes is the essence of progress. Failure to make such adaptations produces

contradictions between what the company is trying to achieve and how it sets about achieving it.

By definition, the average corporation cannot possess superior management. At best, its management can be no more than average; which means, in terms of the art of selling, that its sales techniques do not keep step with changes in its industrial technology or its business emphasis. Even our leading corporations often fail to adapt their sales strategy to their internal changes or to permanent changes occurring in the market. Because of this, they may suffer a limitation of profits over a long period of years and eventually may have to undergo this adaptation as a surgical operation.

The best managements are realistic about such matters. The officers of General Foods, for example, recognize that the intricate network of dealers and jobbers in foodstuffs which interlaces the United States is more reflective of the nation's consumption needs and buying habits than any artificial centralized organization can hope to be.

General Foods therefore distributes about 90 per cent of its products through these recognized channels and sells only 10 per cent, possibly even less, directly to retailers. Items sold directly are sometimes higher profit lines capable of bearing the added cost of direct selling or perhaps new lines recently introduced and undergoing vigorous promotion, or are sold in this way for the purpose of maintaining distribution.

General Foods Corporation makes the most intelligent use it can of the national network of facilities built, owned, and operated by jobbers and distributors at their own capital risk and for their own personal profit. It sells

its goods at a price to the wholesaler subject to a 2 per cent discount for payment in ten days. This is a departure from the former policy of selling to wholesalers at prices listed to retailers minus a discount which usually varied in accordance with the quantity of the order. Nowadays, General Foods usually prices at wholesale in accordance with whether the shipment is L.C.L., pool car shipment, or straight car shipment. The differential is seldom as high as 5¢ per case and is usually 3¢. The wholesaler distributor then prices to the retailer upon the basis of his own costs. His markup may be in the range of 3-10 per cent depending upon the service he renders to the ultimate outlet. This is decentralization carried to the n^{th} degree. It leaves final responsibility for distribution to highly efficient business entities independent from the firms whose products they handle.

Economies Through Bulk

Sometime ago, Standard Oil Company of New Jersey realized that it did not know exactly what it was paying for when it delivered gasoline and oil from its bulk plants to the retailers. Before it could know this, it had to find out exactly how every man in direct distribution spent his time and what he did from the moment the tank trucks were filled at the bulk plant to the time they were emptied at the filling station. None of this information was indicated in the company's accounts. Records which satisfied accounting needs gave no indication of economic cost but merely presented historical tabulations and broad categorical breakdowns.

Standard Oil of New Jersey's books proved inadequate

as a tool to determine just how the distributive dollar was spent and just how economical the operation was. A more thorough analysis was called for. The company therefore sent time study men riding the trucks with the drivers to check and test just what each driver did and how long it took him to do it. The time study sent men out under all sorts of varying conditions, over widely differing routes and distances and over a thoroughly representative sample of the company's truck distribution system. This gave a factually accurate set of data upon which to base generalizations.

The study proved that if the average customer accepted gasoline at an average rate of 50 gallons per delivery, the delivery cost to him was about $2\frac{1}{3}\phi$ per gallon. If he accepted delivery in 100 gallon lots, the cost came down to about $1\frac{1}{4}\phi$ per gallon; if in 1000 gallon deliveries, to $\frac{1}{4}\phi$ per gallon. Above the thousand gallon level, with delivery in the range of 2000-3000 gallons per trip, almost no difference was made to the distribution cost per gallon by the distance traveled. The distribution policy was thereupon changed to correspond to the revealed facts. The company concentrated thereafter on increasing the gallonage of delivery per customer per truck trip.

By 1946, the average gallonage delivered per trip rose to 250 per cent of what it had been in 1938. Almost \$2,000,000 per year was saved in marketing costs. The cost of delivering gasoline, heating oil, and other petroleum products from the company's bulk plants was cut down by almost a half.

Indirect savings of very great importance then began to be felt. Not only were delivery costs reduced but because

the economic cost of distance was so largely overcome it became possible to serve the market with a smaller number of bulk plants. A saving was realized in capital investment. Bulk plants were cut down by 40 per cent. Larger deliveries also required larger trucks. The tank trucks were increased in capacity by 57 per cent, enabling a reduction in their number.

More companies might profit from examining this phase of their operations. The airlines, for example, who have many management problems to solve before they can attain stability, might pay a trifle more attention to the handling costs of passengers and freight and a trifle less to speed records and the political aspects of rate fixing. They might effect considerable economies if they approached this matter with the same simplicity of purpose as the firm we have cited.

Note, however, that just as Standard Oil of New Jersey had to induce customers to accept delivery in larger bulk, and therefore in many cases to invest fresh capital for extra pumps and greater storage capacity, so that management approach which emphasizes reduction of handling and delivery costs may require significant changes to be induced among distributors, dealers, and retailers. It is possible that economies effected through bulk shipment can be made only if customers are prepared to shoulder an extra capital burden. It may transpire, indeed, that the supplier will be able to reduce the amount of capital installations required by himself only if customers are prepared to enlarge their own fixed investments. In all such cases, the main direct delivery economy must then be passed along to the customer to compensate him for the

extra capital requirements of his business. The savings must be shared.

Sales Objectives

Only upon that volume of sales which enables production to exceed break-even point can a profit be realized. Below that point, the corporation cannot operate for an extended period. Insolvency would result. The basic nature of sales planning is therefore the coordination of effort to maintain sales above a fixed level.

Because of this, the most important element of sales planning is not that of continued expansion. It may or may not be, depending upon whether, under the prevailing conditions of production and distribution, additional sales might produce diminishing returns and, by raising the break-even point unduly, produce an actual reduction of earnings.

The break-even point is a variable. If increases in the cost of labor and materials are unable to be compensated by an increased price of product, the break-even point trends upward rapidly. For an adequate profit to be realized, the necessary rate of acceleration of sales will then need to be in geometric progression. Sales objectives, therefore, must expand geometrically.

It is within this frame of reference that the efficiency of a sales organization needs be tested. If the company under review is producing with commendable efficiency and shows no signs of lagging in factors which determine basic costs, the welfare of the organization will thereafter depend upon the efficacy of the selling end of the business. This efficacy is measurable not by whether sales are larger

in one year than in an earlier one but by whether in both these years and in all those which have intervened the required sales objectives have first been defined and then attained.

Certain corporations have been astonished at the pace at which their sales have grown in recent years. Orders have flowed into them far beyond their maximum annual objectives. Many of these orders have been obtained without sales pressure and without planning. To regard the sales organizations of such companies as well managed would be a major error in judgment.

If these managements are capable of misjudging the market for their product, then they have not undertaken proper market research or they have underestimated their optimum production schedules. Generalizations of this sort contain no little element of dispute. It is argued by some that the entire economy as late as 1941 and 1942 underestimated its capacity to produce; the astonishing volume of production achieved in the war period seemed far above what anyone had a reasonable right to expect. Therefore, it is argued, companies whose present volume of sales greatly exceeds their expectation on any scale of relatives, are merely following a pattern of thought of which the average company could be accused with justice.

But of course they could! That is the whole point. Excellent management is as scarce in sales as in any other branch of business. Average management does a reasonably good job but moves where events press it to go; superior management goes where it wants to go, anticipates the trend of events, capitalizes upon that anticipation and forms its objectives within this framework. Superior sales

management alone is capable of establishing rational sales objectives.

Statistically it is impossible to demonstrate that a company's sales objectives constitute control of its economic environment. The ultimate test may seem to be whether or not the company has been consistently profitable and consistently expanding.

Yet note some problems which arise: What if research expenditures undergo a sudden expansion in directions which cannot lead to immediate profit returns? On a statistical basis, operating costs will rise and the rate of profit will trend downwards. The assumption might then be drawn that the break-even point has risen and that the volume of sales must immediately rise if the profit margin is to be restored. Yet the facts may be to the contrary. It is not unlikely that a company sufficiently well managed to make substantial research expenditures might likewise be controlling its production processes so well that the break-even point is moving downward. This, however, would be obscured statistically if public disclosure were not made as to research expenditures. The du Pont Co. is a noteworthy example. Others could be cited.

The peculiar relation of a specific corporation to the trade cycle is another factor which prohibits mere statistical measurement. Certain industries, such as cotton textiles and paper, could not hope by any conceivable sales technique to immunize themselves against cutthroat competition when trade begins to sag. Not even the best managed company in these fields can withstand the pressure on prices. As a matter of fact the ease with which these industries are able to calculate their break-even

point at any given level of labor and material costs aggravates the rate at which prices sink and throat-cutting begins. In trying to maintain operations above the break-even point each company is tempted to slash prices in the hope that enough business will be drawn to it to keep it out of the red. Conversely, these selfsame industries are among the first to feel the effects of a rise in consumer incomes. Beyond a certain point on the upturn, orders pour in upon them more quickly than they can be filled. Sales management is complicated by these facts. Appraisal must be heavily weighted with these considerations. The nature of an industry may rule out consistency of performance as a yardstick in management evaluation—and one would hardly dare to say that there are no superbly managed cotton textile or paper companies.

Why then, introduce the question of objectives, other than to emphasize the relationship between sales and profits? Because, in a sales organization, one realizes almost immediately whether everybody connected with it knows just what he is supposed to do, why he is supposed to do it, and the space of time which ought to be consumed in reaching his purpose. The objective is not the mere mathematical relationship between volume of sales and that minimum volume required to enable the company to break even. Nor is it a mere central objective which all organs of the company pursue. It is a series of personal objectives narrowing progressively from the general director of sales to the newest member of the sales staff, but in all cases being a personal objective for which each individual is consciously responsible.

This boils itself down on the salesman's level to meeting

a quota. But what is a quota? What, especially, is a fair quota? This may be the crux of the matter. A salesman who is simply told that he must sell a stated quantity of goods in a stated period of time is not necessarily being assigned a quota. He may have been presented an impossible task. Or perhaps he could fill his quota without putting any genuine effort into his work. In a time of rapidly falling prices, when inventory is being liquidated, he may find that the so-called quota set for him is the indispensable minimum from the company's viewpoint but that his market has dried up entirely. There may be, during the period in question, no sales whatever that he or any other salesman could make in the territory assigned to him.

Obviously, then, a quota is not a mere numerical calculation presented to him out of the blue. It has to have something substantial behind it, something representative of a genuine appraisal of the optimum individual sales effort in the individual territory under the objective circumstances with which the salesman must contend. It must never, if it is a worthwhile quota, outrage the average salesman by the exorbitance of the demands upon him. Nor must it, if fully met, yield him insufficient income to live in reasonable security. On the other hand, it must not yield him so high an income that meeting the quota is no real necessity to his livelihood. These are only some of the factors which enter into the establishment of rational objectives. What they reflect in terms of a management's thinking is what is important.

A sales management capable of analyzing its purposes in human terms and business terms simultaneously will al-

most invariably fix intelligent objectives. It will start out with the realization that the men who are going to sell its goods are human beings first and means of distribution second. Looking at things in this way, it will make it possible for an average man—using the term average to represent the average level of technical training, initiative, intelligence, etc., necessary to selling in its own particular field—to make an ordinarily good livelihood by expenditure of average effort. Each territorial assignment or each product assignment and their translation into stated sales objectives per salesman employed, will reflect this attitude.

Two things are achieved thereby: A better-than-average salesman working in an average territory will display his merits quickly and will either gain in income from his superior performance if he operates on a bonus or commission basis or will place himself in line for promotion if he works on a fixed salary. Secondly, if an average salesman, known to be average by past performance, consistently makes unusually high sales or unusually low sales in a given territory, it will shortly be perceived that the territorial distribution has been faulty. If a salesman of no unusual caliber consistently outsells his colleagues in other territories, and if his colleagues nevertheless earn adequate incomes, then the territory in which he operates is probably being underworked.

This may seem somewhat of a paradox. It is certainly one over which many sales managements make serious errors. The author knows of more than one company in which salesmen of no especial merit have earned promotion because of the high volume of sales they have produced in the territories assigned to them. In almost every

one of these instances, these men have later proved incompetent in their new positions. When, subsequently, they have been demoted to direct salesmanship, they have been unable to repeat their earlier records of performance.

Their managers have then reasoned that something must have happened to them to cause the sudden falling off in performance. They have often treated these people as disgruntled men who are no longer putting forth their full efforts. In all companies where this occurs, it is the management alone which is at fault. The nature of its fault is not difficult to perceive. If an ordinary salesman putting forth the ordinary amount of effort in the territory or product assigned to him consistently outsells other men in other territories or other products, it is no necessary proof that the man himself is in any way superior. We are interested, in fact, only in those cases where it is the average man and not the superior man who outsells his colleagues. In every such instance, without exception, the selling effort required in the region covered to meet the quota established has simply not been set high enough.

It is the underworked territory, not the overworked territory, which tends to produce the largest income to the individual salesman but lower than optimum sales to his employer. If average effort is not needed to produce the average minimum of sales, then the territory usually is either geographically too extensive and therefore offers more than average sales possibilities or, if geographically small, offers possibilities of intensive exploitation which no single salesman can fully uncover.

Such underworking of territories is not unusual. The objectives established per salesman employed, or for each

region of the country, too rarely reflect the actual sales potential in each territorial grouping. Sylvania Electric Products, Inc., for example, might well have gone along for years underselling on the West Coast. Its individual salesmen in that area, however, might have made truly handsome incomes without extraordinary effort precisely because the region was underworked.

The other side of this picture is that an overworked territory cannot possibly yield favorable returns per salesman employed and must result in undesirably high selling costs. Such a situation is less difficult to uncover. Salesmen unable to earn an adequate livelihood despite their experience, willingness to work, and belief in the product will soon resign. A high rate of turnover of labor among the sales staff is an indication that something is wrong either with the handling of the sales staff, with the product, with its price, or with the territorial assignment.

Often it is in the lower echelons of management that the fault lies. Junior sales executives do not always possess innate capacity for getting along well with their fellow men. If they themselves are afraid of their superiors, this fear may be translated into an unfortunate top-sergeant attitude toward the men in the field. More often than not, however, it is the territorial assignment which is at fault. It may for years have proved satisfactory. Demographic and economic changes, however, may have been so profound that a new territorial distribution is called for.

Nonquota Sales Objectives

Within any diversified company, the decision has to be made recurrently as to which line to press. In many cases,

the decision is made upon the advice of so-called market research rather than upon rational enquiry into what constitutes the company's own best interests. Far too commonly companies emphasize particular products because their market seems momentarily favorable or because a sudden upsurge in interest in the items gives vague promise of a long-continued expansion. One has but to recall the rash of deep-freeze units which overloaded the consumer market immediately following the war. Perhaps the most open secret of all times was the "private and un-discussed" decision made by almost every electrical appliance manufacturer to invade this field. The surplus grew so great and the public was as yet so unaccustomed to this new and really useful article that the main result was a deeply frozen smile on the face of more than one highly embarrassed corporation officer.

Had the matter been approached in a more realistic light, the potential market might still have been overestimated but market research factors would not have proven the sole determinant they turned out to be. They would still have figured importantly, as indeed they should if they rest on factual data and not upon blue-sky reasoning. But there are other matters of at least equal importance which more truly constitute strategic business objectives.

Consider the case of General Mills. It is a processor and distributor of flour. That is its basic function. It has startled the world of business, however, by marketing a most excellent electric iron and by announcing its intention to produce and sell other electrical appliances.

As categories, its flour business and its appliance business are completely unrelated. But as a matter of simple

business they have developed an intimate relationship. Over a period of many years, the company has built up the fictional character Betty Crocker and has used "her" very intelligent advice to housewives to promote the sale of General Mills products and to maintain the company's hold upon its market. Betty Crocker is now giving the same clever and useful advice to housewives as to how to iron clothes that "she" has for years given in the planning of low cost meals and well-balanced diets. Now, General Mills is unifying its promotion of electrical appliances with continued promotion of its foodstuffs through personalizing the helpful advice which Betty Crocker offers the average woman in the conduct of her household. This is a truly unifying principle. In view of the fundamental difference between the two sides of the company's business, the inspiration of exploiting the Betty Crocker reputation in this new direction is deliciously simple.

The company has set itself the fixed objective of promoting a large volume of sales in a relatively high profit line so as to compensate for the very low rate of profit earned upon sales in its normal business. The maximum sales which the company may hope to achieve in the appliance field will still be small compared with the \$299 million sales of foodstuffs which the company made in 1946. But the profit margin will be significantly higher. The benefit to the company, if the sales result proves as ample as we have every reason to believe it will in so excellently managed an enterprise, may contribute significantly to the over-all margin upon sales.

One final word on sales management: It becomes more obvious each day that it is not the product alone which

consumers purchase. They buy in addition—and pay for willingly—release from arduous and unpleasant tasks. A physical product thus incorporates a secondary service.

For example, the packaged loaf is a more expensive item pound for pound and quality for quality than is home-baked bread. What is sold here is not bread but convenience. Bread is the vehicle through which is sold a lightening of the housewives' burden. This is both fact and sales policy. The bakeries, the food packaging companies, and similar organizations have reached extended markets not by giving more value for the consumer dollar than was given in a previous form of the same substance but by giving a trifle less direct value accompanied by distinct ancillary advantages. It is not merely the physical object which the consumer buys in making such purchases that determines their value and marketability. It is the advantage offered in return for a slight increase in direct cost which is what the customer is willing to pay for.

If the cost of home baking amounts to 3¢ per loaf less than the price of wrapped bread, that 3¢ is a small price to pay to be relieved of this time-consuming task.

Realization of this fact is now opening up important new markets to all food processors. Frozen food producers are now promoting with some success the sale of complete meals, including the plate on which they are to be served, which require no preparation other than defrosting and slipping into the oven. General Mills' new Betty Crocker product, Apple Pie Quick, consists of a pre-mixed pastry flour and apples already cored and peeled. This product, like other similar ones now on the market, strikes an interesting balance. The housewife pays for these items a

trifle more than she would if she bought the ingredients separately. She purchases thereby the time that would be consumed in making her own pastry mix and in preparing the fruits.

She pays for savings in effort and trouble. She gains a partial advantage in time saving and makes a partial payment for that portion of time she spends in baking the pie herself rather than have someone else do it for her. It will be interesting to see just how far these companies can go in offering this unique balance of advantages and disadvantages, of savings and expense. It is, at any rate, something truly novel in merchandising and manifests a rather remarkable degree of sales insight.

The Great Atlantic and Pacific Tea Company, on the other hand, has taken a long step in the opposite direction. It has reasoned that housewives will put themselves to considerable effort and inconvenience if domestic budget economies can be made in this way. Probably the inspiration for the supermarket, which is largely an A & P development, and which eliminates the service aspect of retail food distribution, derives from observing the fact that women would walk many blocks to save a few pennies by buying loss-leaders and weekly specials. Why not, then, place every item on such a basis of price that the advantage of a "special" would be generalized over all of them?

The supermarket does exactly that. It undersells the ordinary retail store by a considerable margin on almost every item it handles but compels the customer to serve herself and to travel greater distances from her home and to and from the store. Reductions in operating costs is one of the biggest factors for the establishment of the super-

market and the self-service operation. In addition, the customer is benefited by the rapid turnover of merchandise, greater freshness of perishables offered the consumer through better stock control, and greater convenience through the ability to purchase all food requirements under one roof at one time. Here is an economy offered in return for greater inconvenience, not a price obtained for conveniences offered.

The philosophy of a good sales policy, therefore, must always rest upon a clear conception of just what it is that the company is offering its customers. For one company in one industry, substantial increases in profits and some increase in prices might be obtainable if indirect advantages are combined in the sale. In others, reduced profits per unit but enlarged profits on balance may be realized through drastic price cuts accompanied by substantial economies in distribution costs made at the expense of customer convenience.

Which path the progressive sales management will take depends upon how clearly it has analyzed the buying habits and purchasing psychology of those to whom it is trying to sell. These buying habits and psychological traits have not come into being in abstract, but are at all times rooted in the actual economic status of the customer group. The progressive sales management knows its customer group thoroughly and seeks constantly to serve the interests of that group in the ways that the group itself desires.

XIV

The Principles of Excellent Management

EVALUATION of management is complex in the extreme. For the corporation is not static. It is always in process of change. Evaluation of management, therefore, consists of the measurement of inconstant factors. Because of this, there are almost no inflexible rules for us to apply.

Nevertheless, bearing in mind that every corporation is in process of growth and development, there are certain factors common to all joint-stock companies collectively and to each of them separately at each stage of its evolution. Basically, they resolve into the one common principle that excellent management consists of unflinching control. That company is well managed whose officers do not permit unforeseen circumstances to dictate their actions. The problem of control—which is the essence of what we must search for in the management audit—takes no single form. It varies in accordance with changes which occur in the factors against which a management must contend.

The preceding pages have shown how different companies, at different times faced with specific departmental

problems, have solved them. It is from their experiences that the abstract principles of excellent management can be developed and illustrated. They can be summarized as follows:

The corporation is not a democracy. The stockholder, lacking the power or the desire to control a company's operations, must accept management on faith. Yet, despite his dependence on management for his dividend income and for protection of his investment, his direct interest in the wise administration of his property is no greater than that of the non-stockholding public. For our network of corporations forms the real skeleton of our society. The corporation is our way of doing things. It is both a creature and a creator of high technology. It is a medium through which otherwise sterile money hoards are transformed into creative social tools.

Intimate knowledge of a company's officers is the first indispensable step towards management appraisal. A management cannot be judged excellent solely on the basis of the results it seems to have achieved. This is because an apparent stroke of business genius may—especially during the past ten years—have been the simple product of the pressure of circumstances.

The man best fitted to organize a company is not necessarily, or even usually, the man best fitted to run it in the days of its maturity. The initial stage of creation of a company usually requires domination by an individualist who, when the problem changes to that of coordination of the activities of a team of men, is found to lack the requisite qualities for continued leadership. This is no criticism of such men. On the contrary, it defines their area of greatest

usefulness and warns that the stage of evolution of a corporation must be examined carefully before we can decide whether the chief executive is actually the type of man required to lead and oversee the operation.

Evaluation of the board of directors resolves itself into estimating the wisdom, integrity, and business experience of each individual member. The average age of board members is of primary concern. Equally important is whether the company deliberately searches out new directors capable of making a significant contribution. Whether each board member functions as an individual or whether the board is dominated by a small minority can determine the ethical relationship of the company towards its stockholders and towards the general public.

A company possessed of an inside board must, in most cases, be viewed with suspicion. This is because the restraining influence and the watchdog attitude of outside directors is usually necessary to prevent business excesses and to guard the public welfare. Where an inside board does operate effectively and honorably, this is invariably because the company has reached such a size and its function is so important to the whole economy that the public at large, through its representative institutions and the press, keeps careful watch over the company's conduct. It becomes apparent, therefore, that where the inside board operates properly, outside forces perform the function which outside directors perform on the mixed or outside board. Performance of that function is inescapably necessary. In smaller publicly owned companies, the inside board is always undesirable. The outside board is generally the form to be preferred.

Since management is a human function, the question of who, as an individual, exercises authority and where it is concentrated in the formal structure of the organization is of paramount importance. The formal organization chart can never reveal this because it cannot portray the actual personal relationships which exist within the officer group. Organizational charts are therefore of little value in the management audit. They portray a false and frozen structure which, truly as it may have reflected the organization of the company at the moment of its drawing, cannot change in pace with the changes which occur within the company and therefore portray either a past structure or a purely visionary one which the company hopes someday to attain.

The product-division form of organization is a true expression of large-scale business. It contributes towards product efficiency but needs not guarantee it. Indeed, within each product-division unit of a company all the factors of waste and inefficiency capable of being cloaked by the multiproduct corporation can occur. Consequently evaluation of the product-division organization demands separate detailed examination of each corporate unit.

Location of plant and the reasons for product emphasis in production and sales are indispensable to the management audit. All long-established business organizations, and most younger companies, suffer to a greater or lesser degree from disadvantageous location of plant and unwise emphasis of product. Of every plant, therefore, and of each major product, it must be asked why it is located where it is and why it is produced. If the answers to these two questions do not convey a sense of controlled purpose,

then it is to be presumed that serious weaknesses have been inherited or have been generated by the management in question.

Teamwork is of the essence in the modern corporation. Whether such a team spirit arises from the domination of single individual or from the esteem and affection which a chief executive earns from his colleagues is crucial. The dominant individualist, with perhaps a trait of brutality in his makeup, no doubt has his place in the world of business but that place is a highly special one. It usually is coincidental with the company's formative period. Once this stage is passed, and size and complexity of product have been attained, it is by spontaneous teamwork alone that the company can continue to grow. If this voluntary team spirit does not arise or if, having arisen, it dies, management then invariably falls apart. The individualist is therefore a dangerous man to have in control of any mature enterprise.

Companies so led may appear to be well managed but have actually deferred their management problem. Their form of organization and their way of doing things are undependable, unpredictable, and unworthy of trust.

Nepotism is among the major causes of corporation disunity. Excellent management recognizes this and bans it absolutely. Corporations in which it arises may survive its worst effects but can seldom be the well-managed organizations which society has the right to demand every firm become.

In the analysis of its financial conduct, corporation management is susceptible of the most exact measure. In terms of the management audit, financial analysis is a process of

historical comparison, not by years but relative to the significant cycles through which the company has passed. Average management, by definition inferior to excellent management, is too prone to believe that any economic trend, no matter how recently established, is likely to be of long duration. It puts its faith in a mythical periodicity of the trade cycle and therefore fails to take proper precautions against the whipsawing effects of sudden reversals in cyclical factors. Superior management not only takes steps to shelter itself against such developments but also prepares itself to take advantage of the distressed circumstances which beset business as a whole.

No management can be classed as excellent if, having borrowed money for any purpose whatever, it simultaneously pays unusually high dividends. Dividends should be proportioned to the balance sheet and not to a temporary or prospective level of earnings. Profits which seem high during periods of good trade may, when trade declines, prove illusory. Dividends, therefore, cannot bear any exact relationship, in the well-managed company, to current earnings.

As a matter of fact, financial management should always lean towards conservatism. In estimating disburseable liquid assets, excellent management disregards its inventories and calculates its liquidity ratio on an "acid test" basis.

Superior management does not borrow on long term except as a last resort. Companies which enjoy the highest credit ratings are those which first establish this credit—and then do not avail themselves of it. If circumstances do dictate that capital borrowing is advisable, excellent man-

agement does not avoid restrictive loan covenants but welcomes them. It plans to retire long-term debt systematically and, if possible, before the nominal due-date. Therefore, the existence of rigid sinking fund provisions in debenture indentures is usually an evidence of superior management. Similarly, call-prices for bonds more attractive during the early than during the late years of a debt, normally indicate sound planning for debt retirement.

Of both bonds and preferred stocks, it must be insisted that convertibility into common stock is usually an evidence of a weak present management or a sorry past history. The exceptions to this rule are few. A company for whose securities underwriters are not willing to take responsibility without a speculative inducement must be examined very carefully before it can be thought to meet even the minimum standards of approval.

It is a mistake to attempt to judge management mathematically by the benefits accruing to common stockholders. In particular, well-managed companies saddled with non-callable, high dividend-paying preferred stocks may never get into difficulties and therefore may not have the opportunity which inferior managements enjoy to recapitalize and, by elimination of the preferred interest, to strengthen the position of the common stockholders. It is obvious, then, that although the welfare of stockholders in general is dependent upon the quality of management, the welfare of the individual stockholder is not itself a measure of the management quality of an individual company.

In the manufacturing organization, efficiency and production may determine the whole future of the enterprise.

This aspect of the problem must be examined not merely from the viewpoint of the industrial technology or the relative man-hours required to produce a given product but also in terms of the efficient use of capital and the way in which the labor force is handled.

These facets of the subject are too often overlooked. Efficient use of capital determines whether the accumulated labors of past generations shall now be wasted or shall be employed productively; proper handling of the labor force determines whether the current labors of the human segment of the corporation shall prove fully fruitful.

As a by-product of this latter point, the tendency of the average corporation is towards even larger scale operations, and of the smaller company towards achievement of elementary mass production dimensions. This is because when demand for even the most complex product grows large enough, the salient elements of mass production can be introduced. However, it is impossible for a company to attain mass production status until its resources have grown large enough to enable it to construct highly expensive plant and equipment. The economic advantages of mass production are therefore a feature of the concentration of capital. It is because this is the case that the largest companies can usually undersell their smaller competitors. Their relative efficiency is largely due to the size of their resources which enables them fully to exploit modern technology. It is axiomatic, therefore, that the small corporation is seldom as well conducted or as economical in operation as the intelligently directed giant enterprise.

The production efficiency of a corporation engaged in mass production is not an absolute but must be calculated with reference to size of market. In its over-all sense, efficiency must not be estimated solely from the cost schedule per unit of maximum output. It is not the lowest unit cost of production under conditions of maximum demand which measures efficiency but the average unit cost over the whole trade cycle considered relative to the cost schedules of competitors.

This leads inescapably to the conclusion that a management attempting mass production methods in the absence of a mass market is woefully deficient. On the other hand, attainment of the mass market through merger with other firms may be the first important indication of an impending change in production techniques and, therefore, may be the first outward evidence that a fundamental improvement is taking place in the philosophy of management of the subject company.

No improvement in industrial technique and no artificial enlargement of market through merger can indicate superiority of management or bestow benefit upon a company unless that company's customers share in the benefits of the economies introduced. Otherwise, the social value of competition is negated and the purpose of industrial progress is thwarted.

Excellent management earns income for its employers not by squeezing the market dry but by offering advantages and benefits to the public in return for their continued custom. Over the longer term, excellent management gains by giving others the main fruits of improved technology.

No management can immunize itself against the effects of the successful research work of its competitors, its suppliers, or its customers. Research has the effect of a chain reaction. Excellent management makes certain that it will remain part of that chain. However, many companies claim to be engaged in research although they actually spend little time, effort, or money on research definable as such. Such companies deceive both their stockholders and themselves.

This is a blind spot in the average management. For it is the average management and the inferior management which regard research as the stepchild of industry or as a mere public relations stunt intended to produce copy to feed to the press. A research-conscious management does not expose its research program to the vicissitudes of the trade cycle. Nor does it house its research laboratories in the production plant. On the contrary, it appropriates and budgets for research independently of earnings and provides its research men with facilities divorced from the production unit. Ultimately, the test of successful research is the proportion which newly discovered products bear to a company's sales over a stated period of years. Such results tend to be in proportion to the sums of money, the human effort, and the managerial imagination expended in this direction, harnessed to a sense of how to exploit commercially the products of the laboratory.

The alert company appreciates in advance of its competitors that substantial and permanent changes have occurred in the demography of its market. Every market is a local market. As local changes occur, such as shifts in population or alterations in local buying power, superior

management capitalizes upon these changes. In the company which sells through dealers, capitalizing upon such factors depends entirely upon how a management conducts itself towards its dealers. A spirit of partnership must be generated between dealers, jobbers, wholesalers, and the company if excellent results are to be achieved. In developing such a feeling of loyalty, the company is prior in the chain of causation. It must earn trust by demonstrating beyond doubt that all its promises will be lived up to in both letter and spirit. This is especially so when new products are being introduced and the market position of an established and competing product is being assailed. Above all else, a sales policy must be consistent. Adequate warning must be given of intended changes in products or in sales methods and selling relationships.

The management of distribution costs is among the basic indices of management quality. Of most of the goods sold to consumers in this country, the main part of the price goes to distribution costs. It is in this area, therefore, that the greatest economies can be made without disturbing a company's operations or involving new capital investment or abandonment of existing plants.

In overcoming distribution costs, better management tends towards bulk distribution. Bulk distribution is an adjunct to mass production. It presents the same opportunity for enlarging sales and enhancing profits and, at the same time, for passing on some part of these savings to the customer. It is both individually and socially valuable and meets the rigorous challenge of a competitive climate.

Quality of management cannot be judged solely by an increase in sales. There has been abundant evidence in

recent years that many companies have enjoyed increased sales fortuitously and without plan. Such companies are not excellently managed. They are simply lucky.

The philosophy of a good sales policy rests upon a clear conception of what it is a company has to offer its customers. The progressive sales management, therefore, knows its customer group thoroughly and seeks to serve that group in the way that the group itself wishes to be served.

This latter sentence sums up the whole outward relations of management to the public. In its outward aspects, superior management understands what it is the public wants and why and how it wants it. Profit may be its corporate objective but service is the means through which good management strives to earn it.

APPENDIX

The Objective Method of Management Audit

Application of the following audit material to more than four hundred companies has confirmed the author in his opinion that a comprehensive study reveals, and places into proper relationship for analysis, all the salient characteristics of an individual management.

The audit material derives from the principles enunciated in the text. Its weighting by sections applies to the average *manufacturing* company. It does not apply to companies engaged in mining or transportation or to public utilities. It has been designed to indicate which questions a company's executives can answer readily, comprehensively, and unambiguously, and which questions cannot be so answered, thus indicating the extent of the company's management problem.

It is important to know which officers answer which questions. It is equally important that frank statements be obtained as to why certain questions remain unanswered.

Answers to certain of the questions will need to be obtained from various sources, public and private, and compared with those given by the company's officers. This is more particularly the case where the nature of the questions is such that answers must contain more of seasoned judgment than of statement of fact.

Supplemental questions and revisions in weighting should be developed, to conform to the peculiarities of the industry. In chemicals for example, research would require a higher weighting than in cotton weaving. In a competitive industry

producing a standardized item, such as radios or cars, sales vigor might outweigh some other factors. With this proviso, the audit material has shown itself highly practical as a first step in auditing management. Its employment has introduced objectivity into a subjective process.

The table below, taken directly from the author's files, summarizes the application of the audit material to three nationally known companies in the same industry. As the audited totals show, when this comparison table was constructed a year ago, Company A alone passed the rigorous test of management excellence. Company B was in a transitional condition, which made it impossible to evaluate either its board of directors or its executive officers. Company C failed on most counts. Since the comparison was made, Company C has continued to deteriorate; Company B has lost from its employment all its vice-presidents and a number of its directors. The weightings were thus confirmed.

COMPARATIVE EVALUATION TABLE

	Maximum Attainable Rating	Actual Ratings		
		Co. A	Co. B	Co. C
Economic Function	400	400	300	200
Corporate Structure	500	450	500	300
Health of Earnings Growth	600	600	500	200
Fairness to Stockholders	700	700	700	500
Research and Development	700	700	700	nil
Directorate Analysis	900	750	nil	600
Fiscal Policies	1100	1100	1100	500
Production Efficiency	1300	1300	1000	650
Sales Vigor	1400	1400	1400	600
Executive Evaluation	2400	2100	nil	1300
TOTALS	10,000	9,500	6,200	4,850
Excess over				
Required Minimum (7,500)	2,500	2,000	-1,300	-2,650

MANAGEMENT AUDIT MATERIAL

Economic Function

400 Points

1. When was the present company founded? What, in brief, was the financial history of its predecessors?
2. Was it initially financed by public or by private funds?
3. When was its stock first made available to the public and what subsequent offerings have been made?
4. Were these offerings for corporate or for private purposes?
5. What important changes have occurred in the capital structure since its inception?
6. Are the company's securities traded on a national exchange? Which? Since when? Is it fully listed?
7. What is the nature of the company's business?
8. Have the company's main products consistently contributed to the economic development of the nation? In what way?
9. Did the company reach important stature during the life of the founder?
10. Has the fundamental nature of the business ever changed? How, when, and in which ways?
11. Who are the company's largest competitors? How has this picture changed since the company's inception? How have they fared relatively?
12. What technical improvements have competitors introduced? Have their effects upon this business been adverse?
13. Has the company's competitive standing risen since its inception? What proportion of the total market in its line of products does the company now obtain; what was the proportion 5 years ago—10 years ago?
14. From where does it get its supplies? Has this changed? When and how?
15. Where were its original markets? When and how have these changed?
16. What changes have occurred in its by-laws since the inception? What caused these changes?
17. Is the company under the supervision of a government regulatory body? Which? Are its relations with the company harmonious?
18. What foreign influences and connections does the company now have and what have these been in the past?
19. What mergers have occurred?
20. Has the policy in merger been through exchange of paper or for cash?

21. What is the history of the acquisition of its fixed assets?
22. Has it followed the policy of acquiring patents by purchase since its inception?
23. What changes in stock control have occurred?
24. Which large stockholders have disposed of their holdings? Why and when?
25. Has there ever been a struggle for stock control? When, between whom, and what was the outcome?
26. Which new dominant interests have acquired interests? When and why?
27. What has been the history of the company's banking connections?
28. Through what agencies has the company at different times placed its fire and liability insurance? Is it self-insured? If so, since when?
29. What changes have occurred in legal counsel employed by the company?
30. What changes in advertising agency or counsel?
31. What changes in public accountants?
32. Has the company ever defaulted on a public debt or a commercial bank debt?
33. Has the company ever had any significant patent litigation?
34. To what extent in the past have its officers and directors held public office?
35. Has it ever run afoul of the anti-trust laws?
36. Has it ever engaged in lobbying? In Federal or state legislatures?
37. Have the common stockholders always enjoyed pre-emptive rights?
38. In the past, what stock, if any, has been issued to executives and employees below the market?
39. What changes in managerial personnel have occurred since the inception? What was the significance in each major instance?
40. Has the company ever reduced salaries of chief executives? If so, when, why, and whose?
41. Has the outlook of the management always been well harmonized with social changes?
42. Has the company ever passed through a management crisis or radically revised its corporate operations or methods?

*The Corporate Structure**500 Points*

43. Who exercises the principal authority?
44. What are the relative powers of the President and the Chairman of the Board?

45. Is the President also the General Manager?
46. Who are the ten most important stockholders?
47. What percentage of the stock do these hold?
48. What powerful "outside" interests, if any, influence the management in its decision making?
49. Is there any "team" of directors on the board?
50. Who are the officers? Give full details regarding each.
51. What committees exist? How often do they meet? Who compose these committees?
52. Do the board and committees meet regularly or irregularly?
53. What records of meetings are kept; how are they distributed?

54. Does the formal structure or plan of organization of the company operate on a decentralized basis geographically or is control exercised over all functions from a central point?
55. Why were the plants first put where they are? Do these reasons still hold true?
56. Is location of plant best advised relative to raw materials, transportation, labor supply, and markets?
57. To what extent does the company operate through subsidiaries?
58. Is it operated on product-division lines?
59. Is the structure of the company such that the profitableness or unprofitableness of each product—under its going method of production and distribution—at all times apparent?
60. In determining profitableness or unprofitableness how is administrative and selling burden loaded against the various divisions or products. How is the factory burden loaded—on an over all plant basis or on "production centers"?

61. Is control of manufacturing operations and sales on a product basis or by divisions including several related products?
62. What percentage of the company's sales represent unprofitable business?
63. What proportion of the flexible burden does such unprofitable business absorb?
64. How many products are currently marketed and to what extent are they allied lines?
65. What products have been discontinued in the last 15 years and how many added?
66. Which is the most important and which the most profitable line?
67. What percentage of the total market does each product represent? What percentage of the company's gross sales?

68. How does the profit on each product compare with the average for the industry?

Health of Earnings Growth

600 Points

69. What growth in earnings and assets is shown by a thirty-year study?
70. How has the company fared in all the significant trade cycles?
71. Did the company take a severe inventory loss in 1920-21, 1925-27, 1937-38? What was the proportionate distribution of its assets in those periods? To what extent were net profits and balance sheet items affected?
72. Has the company always kept itself in a highly liquid condition?
73. How have its asset ratios compared with those of its competitors?
74. To what extent and when did it go into the capital market for senior and/or equity funds?
75. In thirty years, how have its operating ratios compared with those of principal competitors?
76. Has it ever omitted preferred dividends or defaulted on its bonds?
77. When it has raised additional money, was the purpose to provide for future growth? Sinking funds?
78. Are there any noncallable senior securities?
79. Has it ever had to rely on convertible issues for financing? Why?
80. Has it ever passed through a financial reorganization? Give full details.
81. What percentage of the company has been owned by the common stock at the close of every year since its inception?

Fairness to Stockholders

700 Points

82. What percentage of earnings has been paid out as dividends in each of the last thirty years?
83. Has there been an established dividend policy?
84. Did the company pay dividends through all depressions? From current earnings or from surplus account?
85. What, if any, stock dividends have been given, and when?
86. Has the old dividend been paid on the new stock?
87. Has the company ever underdepreciated in order to pay dividends?
88. Have there been any property write-ups based on valuations?
89. Have intangibles been written off the balance sheet?
90. Are there any dividend restrictions in prior security indentures?
91. How does percentage paid out compare with that of the rest of the industry?
92. How many uninterrupted years of dividends and how many without reduction of rate?
93. Have dividends been so large as to prevent an adequate rate of growth of surplus?

Fiscal Policies

1100 Points

94. What has been the effect of fixed capital growth on liquid funds? Has fixed capital been financed from outside sources or from liquid funds and profits?
95. What has been the quick asset turn-over?
96. What history of inventory turn-over?
97. History of collections and bad debts?
98. How have contingency reserves been handled and what form have they taken?
99. Depreciation—to what extent are plant and equipment depreciated and what has been done with the funds?
100. If expansion has been financed by new issues or borrowings give fullest possible details.
101. What system is employed in inventory controls? How is inventory turn-over measured? What has been ratio of material cost to sales over a period of ten years?
102. Has the company a comptroller? To whom does he report?
103. Are inventories on a Lifo basis?
104. What is the position of the company as an insurance risk?
105. Does the company have a pension fund? Give full details.
106. What contribution is made to pension or retirement fund by the company in proportion to the employees' contribution; are such contributions by the company related to net profits?
107. Who is Trustee of the Pension Fund?
108. What securities can be purchased by the Pension Fund? What other forms of assets may it hold? What assets does it actually hold?
109. What operating reports are issued and to whom; and in what form?
110. Are too many operating reports issued?
111. What budgetary control is exercised?
112. Are manufacturing statements projected as against estimated sales?
113. Are cash flow sheets prepared for a long time in advance and how frequently adjusted? Are cash disposition sheets issued for each month's operations with an analysis of changes in current position and reasons therefor?
114. What methods are employed to control inventories and to relate them to production estimate?
115. Can the following record be obtained for thirty years?

Statistical

Earned per share	preferred
	common
Dividends per share	preferred
	common

Appendix

Price range	preferred common
Net tangible assets per share	preferred common
Fixed charges earned:	
Before income taxes and depreciation	
Before income taxes and after depreciation	
After Federal income taxes and depreciation	
Times charges and preferred dividends earned	
Funded debt	
Net tangible assets per \$1,000 funded debt	
Net current assets per \$1,000 funded debt	
Number of shares	preferred common

Financial and Operating Ratios

Current assets/current liabilities
% cash and securities to current assets
% inventory to current assets
% net current assets to net worth
% property depreciated
% annual depreciation to gross property
Capitalization:
% long term debt
% preferred stock
% common stock
% surplus
Sales/inventory
Sales/receivables
% sales to net property
% sales to total assets
% net income to total assets
% net income to net worth
Preferred dividend, times earned

Analysis of Operations

Net sales by products
Cost of sales by labor, material, and burden
Selling, advertising, general, and administrative expenses
Operating profit
Other income
Total income
Interest expenses, etc.
Other deductions

Net income before income taxes, etc.
 State income taxes
 Federal income taxes
 Federal excess profits tax
 Minority interest
 Special deductions
 Net income

Statement of aggregate cash flow for the last thirty years.
 (All revenues collectively and statement of their disposition.
 Not by years).

Research and Development

700 Points

116. How long has the research department been established?
117. Who heads the research department? How and when was he chosen? What are his qualifications and what is his salary? What part does he play in general policy formation for the company as a whole?
118. How many assistants does he have and what is the total number of people employed in the research department? What are their separate functions?
119. To whom does the research department head report?
120. Are budgets established by projects and is each engineer assigned one or a limited number of projects?
121. What minimum can the company afford to spend on research annually? What percentage of sales does this represent?
122. Is the research department physically separated from the production plants?
123. What products, if any, now important to the company, have been discovered "accidentally" in the course of the company's general researches?
124. How many patents have been granted to the company since the department was formed? How much royalty income is received annually?
125. What proportion of the department's investigations originates from problems submitted by the general officers and what proportion spontaneously originates in the department itself?
126. By how much have research expenditures increased during the past fifteen years?
127. Is the department budgeted departmentally or is it unsure of its periodic spending power?
128. What percentage of the company's gross revenue derives from the research department's developments? What percentage of gross and net profits?

129. What proportion of foreign born and foreign trained technicians are in the department's employ?
130. Does the company endow university postgraduate research scholarships in its own field? If so, where and how many?
131. How much of the department's work is basic research and how much applied?
132. What lines of products should be developed from within, via research?
133. What changes have occurred in the number of men employed by the department over the past fifteen years, relative to changes in business conditions?
134. How much have the expenditures risen per man employed by the department over the past fifteen years? How much of this was salaries?
135. Are periodic project reports required from research engineers?
136. Are research department budgets based on a percentage of sales? How are the budgets based?
137. What changes have occurred in production processes in the company, outside the field of new products, as a result of the work of the department? What economies have resulted from them?
138. How did the research department come to be established in the first place?
139. As a result of research, what price reductions, if any, have been made possible and have taken place?
140. Has the department freed the company, or the nation, from dependence upon foreign sources of raw materials?
141. To what extent does the company's research division cooperate with others in the same or related industries?

*Directorate Analysis**900 Points*

142. Who are the directors?
143. When was each added to the board? Details concerning him?
144. What is the age distribution of the board members?
145. How does age of directors compare with age of officers?
146. What other business connections of each member?
147. Why was each man put on the board and whom does he represent?
148. Is there a dissenting minority on the board?
149. By whom are meetings customarily conducted?
150. Are the meetings conducted harmoniously?
151. Is the board management dominated?
152. If the board is management dominated, what officer or officers carry the most influence?
153. Does the board act only on matters passed on by the executive committee or by an ad hoc committee?

154. Are major policy divisions presented to the board with explanatory information and with adequate time for consideration?
155. What is a director's remuneration? Expenses?
156. Where does each live?
157. What are the stockholdings of directors? How have these stockholdings increased or decreased in the last ten years?
158. Is it an inside board or an outside board? Since when?
159. What cross-directorates?
160. What proportion of directors are lawyers, bankers, customers, suppliers, competitors?

Production Efficiency

1300 Points

161. To what degree has productivity per head of production employees increased over the past thirty years?
162. What has been the record of break-even points?
163. What percentage of costs, historically, constitute labor costs, at three-month intervals?
164. What increases in plant capacity?
165. At what rate of capacity has the plant historically operated?
166. What basic technological changes have occurred in past thirty years?
167. What is the historical plant-dollar per workman employed?
168. What, in each year, is the percentage of fixed assets to wages payments?
169. Is production on a production-belt basis?
170. What improved manufacturing methods have been introduced in your plants that are not used by competitors? And vice versa?
171. How is the decision reached to increase or decrease production and who makes that decision?
172. How often are production schedules revised; what is the liaison on the time lag between sales forecasts and production schedules?
173. What is the history of production costs?
174. What is the history of overhead costs?
175. Do the paper control systems save more than they cost—and how much?
176. Does the company maintain its margin on the downside?
177. Do top production men operate from behind their desks or on the floor?
178. What percentage of the plants now in use have been built for the specific operations performed?
179. What is the physical condition of plant and equipment?
180. Is the equipment up-to-date? On what basis is new equipment purchased as compared to estimated savings and manufacturing cost?
181. On what basis of estimated life is new equipment purchased?

182. Has the company reached the point of diminishing returns in any of its operations? How does it know when it has?
183. Have mergers and plant requisitions resulted in lower average costs?
184. Have changes in production methods preceded or followed changes in size of markets?
185. Have workpeople opposed or accepted willingly technological changes and have they benefited from them?

186. How do costs in this company compare with others in the industry?
187. What do such overhead costs include; what is the percentage of annual sales of such overhead cost? What has been the trend in dollars in such overhead cost over recent years?
188. Does the company—or has it ever—employ production engineers and efficiency experts?
189. How often—and when—have production managers been changed?
190. Is production control decentralized? If so how, since when and with what result?
191. What autonomous authority is exercised by the plant superintendents?
192. Who establishes the “allowables” for each department? How is this done?
193. How many products are produced?
194. How many plants produce them and what is their geographical location?
195. What products are produced in which plant?
196. What is the usable floor space area of each plant?
197. When was it constructed?
198. How many stories?
199. What is its location in relation to raw materials, fuel, ultimate market, labor supply, transportation facilities, water, waste disposal?
200. Was the plant built by the company or acquired?
201. Is it fireproof throughout?
202. Is the local political atmosphere healthy?
203. Are plants owned or rented?
204. Could they, physically, be moved?
205. What is the overhead cost of the plant?
206. Are additional plants required in other geographical locations? What are the advantages to be derived therefrom?

207. What is the present investment in machinery per production worker?
208. What is the average age of machinery and equipment?
209. What tolerances are required and possible of achievement?
210. How many machines are of own design and how many are standard models?

211. Is the layout a continuous line operation?
212. To what extent are the machines covered by company owned patents?
213. What has been the percentage of capacity operation of machinery and equipment year by year? Is the plant operating now at higher or lower rate of capacity compared to five or ten years ago?
214. What is the relative efficiency of the equipment compared with that used by the most efficient and lowest cost competitor?
215. In allocating expenses or allowables for each department, is this done on a fixed and variable basis; are the variables related to labor or to other factors?
216. Over a period of years, what changes have occurred in production per piece of equipment per man hour employed per item produced?

217. Are the company's plants unionized?
218. What unions in each plant?
219. Is there a worker-management committee?
220. What is the company's labor dispute history throughout the incumbency of the present management?
221. What are the company's unit labor costs, historically compared?
222. Who in the company deals with labor? What is his status, his pay, his background?
223. Is there a formal grievance procedure?
224. Is there a satisfactory relationship between management and labor?
225. Has the management been criticized for any paternalistic practices?
226. Are plant cafeterias maintained? Who runs them: are there complaints?
227. What incentive system is there?
228. What is the rate of labor turnover? Is it increasing or decreasing?
229. By what method is labor turnover measured?
230. Is employment offered to the physically handicapped?
231. Is there a system of rewards for suggestions made by employees?
232. What methods of personnel valuation are employed, such as initial aptitude tests?
233. Are physical examinations in force annually or at periodic intervals?
234. What policy of indoctrination is being pursued for new employees? What training courses for improvement of employees are offered?
235. Who is the production manager? What are his qualifications; how long has he been there?
236. Does the company hire foremen and superintendents? Or does it promote from the ranks?
237. What public relations programs are carried on?

238. Who heads the sales division? Give detailed history.
239. How many assistants does he have? Give their histories in detail.
240. How is sales personnel selected?
241. Does the company train all its own salesmen? Is there a training school?
242. What amount of technical training does each salesman require?
243. How many employees are there in the sales division and what is their percental grouping?
244. What is the system of promotion in this division?
245. Is the sales division centralized or decentralized?
246. Is it conducted on a geographic or a product basis, or on a combination of both? Give sufficient detail to make the structural policy quite clear.
247. How is the division subdivided?
248. Are export sales handled directly? How is foreign personnel chosen?
249. Is there a separate division to handle Municipal, State, and Federal Government orders? Who heads this and what is the history of his business relations with the public authorities?
250. To what extent does the sales division receive aid from other departments? Specifically, what link is there between the sales and the technical divisions?
251. Does the company sell through wholesalers, distributors, and/or dealers?
252. Does it own or control any of its distributor organizations?
253. What service and repair depots are maintained: where are they located?
254. What facilities are maintained for quick deliveries in supplying needed parts?
255. To what extent does the sales division determine the company's production schedules?
256. Who decides how large or small shall be the inventory of finished goods on hand in the regions and districts? How is this related to the general inventory control?
257. Who decides which lines to stress at stated intervals?
258. How does the company sample and test its coverage of its regional markets?
259. What types of products or types of companies should be acquired to expand the line, or should any such acquisitions be contemplated?
260. What reports are made by the sales division; who makes them; to whom; and how often?

261. How are sales quotas established?
262. How is the sales division compensated? By a separate corporate budget or on a fee basis from subsidiaries?
263. How does the company price its goods?
264. Does it extend long-term credits? Who handles them?
265. What percentage of goods are returned?
266. Who handles returned merchandise and what is the method whereby it is handled?
267. How many customers are there? Dealers? Distributors?
268. What is the annual turnover of dealerships and distributorships?
269. What is the size of the average account?
270. What size of account is needed to break even on each sale?
271. What sales samples does the company use?
272. To what extent is the company able to control its prices at retail?
273. What proportion of sales are for export?
274. What proportion of sales are for Government accounts? Municipal, State, and Federal?
275. What proportion of the wholesale price of the products is absorbed by selling, distributing, and advertising costs?
276. What advertising agents are employed?
277. Which product or group of products does each handle?
278. How much per year is spent on advertising and what percentage is this of gross sales?
279. Which media are used and what steps are taken to determine the profitableness of the use of each?
280. Does the company engage in cooperative advertising?
281. Does the company employ only one brand name or does it have secondary lines?
282. What is the link between advertising policies, sales policies, and production policies? How does each influence the other deliberately?
283. Are any products sold by direct mail?

Executive Evaluation

2400 Points

284. What changes have occurred in executive personnel in last fifteen years?
285. Do any of these changes appear to have been made other than on merit?
286. What has been the cause of these changes? Dismissals, deaths, retirement, etc.?
287. To what extent does the executive group represent neighbors, fraternity brothers, a specific college?
288. What is the tie-up between the members of the executive group?

289. Is there, or has there ever been, nepotism in the organization?
290. Is there any one officer charged with Forward Planning on products from the sales and over-all policy position, or is the source of new products from research activities or from offerings from outside sources? To what extent are inventors encouraged to offer their ideas to the company?
291. Are there any rules written, or unwritten, which forbid employment of two or more members of the same family in supervisory and/or executive positions?
292. What are the personal characteristics of the boss?
293. Does he lead through intensiveness and aggressiveness?
294. Do his activities tend to create enthusiasm within the organization?
295. Does he merely select division heads or does he make division decisions?
296. What method is used to select executives?
297. Is it based on price or quality?
298. How do executive salaries compare within the industry?
299. What evidences are there of teamwork between executives?
300. Do any of the officers believe that any competitive companies may be merged with to advantage?
301. In the case of each separate officer and/or department head:
- (a) Who is being trained to succeed him?
 - (b) What is the rate of turnover of trainees working under him?
 - (c) Which men trained by him now occupy important office in other companies?
 - (d) Is he regarded as a good man under whom to receive training?

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