A THEORY OF SMALL BUSINESS AND
DIVISIONAL GROWTH

DISSERTATION
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*****

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CHAPTER I

STATEMENT OF THE PROBLEM AND METHOD OF ATTACK

Purpose of the Study

In recent years the literature of the social sciences has been much concerned with the problems, methods, and consequences of growth. Economists have sought to accelerate the rate of national growth in this country as a competitive weapon in the "cold war." They have likewise become attendant to the needs of underdeveloped countries, many of whom are only now entering a period of rapid development similar to that experienced in this country at the turn of the century. Labor economists have sought to explain the weakening growth pattern of the labor movement in the United States. Psychologists and sociologists have begun to study the characteristics and processes of large and small groups, including business organizations, as they change and grow.

The research and literature of business management, on the other hand, have concentrated upon the important problems of running a large, complex business organization. With such significant contributions being made in this area, little attention has been devoted to the problem of
achieving a large scale organization. Few studies have sought to determine how a small enterprise with simple organization and limited resources becomes a large, successful institution with a complex organization structure and skilled executive leadership.

That such a study would be fruitful is suggested in the following statement:

... in the studies of Economic Development, economists and economic historians have made valuable progress in developing a new type of dynamic economic theory. Certainly the differential rates of growth observable in time and place have deep-seated causes and require careful study. Some of the concepts used appear also to have marked value in the study of equally puzzling differentials in the rates of development of individual firms. For example, the propensities discussed by Rostow to develop fundamental knowledge, to apply such knowledge when created by others, to adapt to changes made by others, and to accept the importance of change appear to have significance at the firm level. (Underlining mine.)

The present study seeks to fulfill the above suggestion about studying firm growth by tracing the changes in basic business factors through successive stages of business growth. The exact nature of these stages and the definition of the factors studied will be enumerated in detail in subsequent chapters. It is only necessary at this point to emphasize that the study is predicated upon

an understanding of basic management knowledge, rather than upon some other social science. If occasional reference is made to concepts of economics, sociology, or psychology, the purpose of making such reference is merely to call these useful concepts to the attention of practicing managers.

Several sources of information have been used in the present study:

1. **Management literature.** An extensive search of the existing literature was made in an effort to discover present knowledge on the subject of business growth. Surprisingly little has been written on the subject in the management literature. The few important contributions on the subject of growth will be noted in Chapter III.

2. **Literature of related disciplines.** The literature of related disciplines was also reviewed. Some important contributions to the study of business growth have been made in some of the social sciences, though few of these discoveries have been integrated into the present philosophy of management.

3. **Business annals.** Business libraries are of course replete with published business histories and with case material drawn from business history. This information has been useful in providing illustrative material for hypotheses in the present growth model and as a source of
empirical information. All too frequently, however, such histories present much that is merely unusable general description.

4. **Primary analysis.** A detailed historical study was made of the growth history of five companies from their beginnings to the present time. This long-run analysis, as opposed to the more frequent cross-section analysis, is involved and time-consuming. It has permitted some rather significant insight into the problem of growth, however, and is an important part of the present study. A detailed explanation of the method will be presented shortly.

5. **Other sources.** The writer became acquainted with the growth problems and management methods of the small businessman when he recently interviewed approximately thirty of these men in a study sponsored by the Small Business Administration. Of the group, about half had been in business during at least the last five years (1956-1960), while the other half had gone out of business at some time during that period. The results of the interviews with these men are presented implicitly and explicitly in the present study.

Also used have been studies of corporate reports to stockholders, interviews with managers in firms unsuitable for a complete growth study, and experiences by the author in working for and with small businessmen.
Analytical versus Empirical Research

Before presenting the nature of the methodology used in greater detail it is useful to clarify the important relationship between the two basic types of analysis: analytical research and empirical research.

Analytical research is the primary means by which principles of management are developed. A principle may be defined as "an explanatory statement of general truth, derived from a study of the facts set up in a cause and effect relationship, which always applies under given conditions or assumptions."\(^2\) It has also been defined as "a statement accepted as true in the present state of our knowledge, which sets up a meaningful relationship between cause and effect."\(^3\)

Analytical generalizations of this type express conclusions which logically follow from certain assumptions. An analytical principle is valid to the extent that it is logically consistent; that is, to the extent that it follows logically from the assumptions given. It is applicable in a particular real life situation if the assumptions


of the principle are in agreement with the conditions of the actual situation.\textsuperscript{4}

Misapplication of principles causes apparent discrepancies between principles and actual practice, i.e., such statements as "that is fine in theory, but doesn't work in practice." But, "a principle is not 'fine' for a particular purpose unless its assumptions agree with actual conditions. If they do, the conclusions advanced by the principle \textbf{will be realized} (granted its logical correctness). Apparent discrepancies between theory and practice arise from misapplications of the theory, of using it in situations for which it is not relevant."\textsuperscript{5}

In recent years much attention has been given to the use of mathematics in the study of business. Except for mathematics in statistical work, which is a form of empirical research, the use of mathematics is actually another form for deducing and explaining principles of management. Thus, the mathematical and the non-mathematical forms of analytical research represent merely "alternative techniques of exploration and alternative languages of explanation of relationships."\textsuperscript{6}


\textsuperscript{5}Ibid., p. 21.

\textsuperscript{6}Ibid., p. 25.
In the present study analytical research has been used to develop a growth model which will account for the evolutionary changes that take place in the management and organization of a firm as it grows. As might be expected, the approach has yielded certain principles of growth management and has clarified certain assumptions necessary if other accepted management principles are to be valid over time. Some of the apparent paradoxes in present management knowledge have also been resolved. It is possible to explain, for example, why, when an accepted trait of leadership is "intelligence," some successful leaders appear to lack this characteristic. It is also possible to explain why, when successful companies are expected to have effectively performed the management process, there are some notable examples of successful firms directed by leaders who operate "by the seat of their pants."

The second type of research is empirical. This is the study of relationships between observed data, which may be expressed in a generalized statement of tendency. Empirical generalizations are arrived at through the process of induction. They may be reformulated into the form of analytical principles when assumptions necessary are clarified and stated.
Such empirical studies are useful for several reasons. First, they indicate problems which warrant the use of analysis and development of principles. Second, they help to clarify the assumptions upon which principles of management are based. And, finally, they provide a check upon the validity and applicability of principles. If empirical studies indicate differences in results from those indicated in analytical reasoning, then a review and reanalysis of the principles is in order.\textsuperscript{7}

Empirical research has been used in the present study to analyze the growth history and experience of several actual firms over their lifetimes. The firms have been subjected to both quantitative and qualitative analysis in an effort to determine the rate and make-up of their growth. Such research might be expected to yield some heretofore unexplored insights into the process of growth. The studies will consider the growth and development of such factors as business objectives, policies, leadership, functions, and organization structures. In doing this the studies help to explain and strengthen the present body of management thought.

\textbf{What is a Growth Model?}

As the term "growth model" is used in this study, it means a theoretical representation of the successive stages

\textsuperscript{7}\textit{Ibid.}, pp. 22, 23.
through which a growing firm will pass, and the changes in basic business factors attendant to these stages. Particular attention is devoted to two critical points in this growth model: (a) the point of take-off, when certain conditions must be present to induce an accelerated rate of growth; and (b) the point of stabilization at which time the firm must institute an effective organization structure and efficient management practices if it is to continue growth and development.

The analytical growth model explains the characteristics of growth of a successful firm within certain clearly defined assumptions. These assumptions and the details of the model will be enumerated in Chapter IV. By knowing how a firm does grow, it should then be possible to point out how a firm may plan for growth. This plan for business growth is presented in Chapter XI. It should also be possible, by using the growth model as a standard, to determine the reasons why an unsuccessful firm has not grown.

The analytical growth model is dynamic in the sense that it emphasizes changes in the firm as it grows. A more typical method of studying growth is to analyze the characteristics of "small" firms or "large" firms at one point in time. This more frequent method suffers from
its attention to characteristics at points of time rather than studying changes over time, as the growth model does.

The dynamic model is also particularly useful because it is complementary and supplementary to the existing body of management knowledge. It is premised on the acceptance of the principles of management as they are known today. The basic addition that it makes to this body of knowledge is to point up certain assumptions that are necessary if the principles are to be valid and applicable. It is, in a sense, a dynamic dimension to be added to present knowledge.

Methods of Empirical Analysis

There are two basic empirical methods for studying business growth. The first is to make a cross-section study of firms of different sizes and then stress the advantages or characteristics of being a particular size. If, for example, "small" business is defined as having less than 500 employees, or with less than $3 million sales, then all business below that figure might be expected to have one set of characteristics; those larger, another. Even when the particular measure of size is broken into several categories the effect of the classification is the same: it ignores the fact that a firm of a given size may be "among the largest in one industry -- apparel, for
example -- and among the smallest in another, such as steel."\textsuperscript{8}

The second method of studying growth is to make a long-run study of a firm over time. By this method the actual size of the firm is treated as incidental as the firm gets larger. In other words, the actual dollar volume of sales, or value of assets, is not as important as the relative change in these figures from year to year. When one uses this method the various qualitative and quantitative changes which take place in a firm are studied over the span of its lifetime.

There are several difficulties involved in the long-run method for studying business growth. First, many firms are less able to provide yearly data for their entire history than they are to supply current figures. Few records are kept during early stages of growth. Those that are retained often become destroyed or misplaced. Even important financial records become buried in a storeroom amid dust, unlabeled trash, and miscellany. Second, some firms, especially the smaller ones, are unwilling to provide the required volume of information. In some cases they do not have the manpower to spare; in others, they follow a natural inclination of the small businessman to

want to keep things secret. Third, the method is time-consuming. While a cross-section analysis may be made by using a questionnaire or interview, the long-run study often requires a search through old records, long and involved discussions with management personnel, and a patient persistence in arranging interviews. In making yearly line-staff comparisons, for example, it is generally necessary to sit down with the top executive of a small company and then go through each name on old payroll or social security tax withholding records. In such cases the manager must designate the job title or duties while the interviewer classified the job as line or staff.

Finally, the long-run analysis method is limited by the fact that only a restricted number of companies may be handled in this fashion.\(^9\)

Thus, the conclusions reached through this form of research are subject to the limitations of a small sample size.

There are several important advantages in using the method, however. First, it is especially useful in the present study since it parallels the growth model and acts as a check upon its validity. Second, because the method has seldom been used, it provides new insights into the problems and characteristics of growth. This is especially true in the case of small business studies, where no historical study of this nature appears to have been conducted. Third, as mentioned earlier, this is the only method by which the subleties of change and adaptation may be traced during the lifetime of a firm.

After considering the kinds of data needed to meet the objectives of the present long-run study, it was decided to gather information in three different steps or phases. The following summary explains the kind of information gathered in each step, and the uses to which it is to be put:

1. **The history of the company.** It was necessary to get a "feel" for the changes that had taken place in each company under study and to determine the general philosophy of its management over time. For this reason, the study usually started with a review of any available published information about the company, its management, and its products. In most cases, the companies were too small to have had any information published, and extensive
discussions with top management officials were used instead. Particular attention was paid to changes in management and organization, functional changes, the personality of top executive leaders, strains or crises brought on by growth, changes in product lines, changes in competition, and formalization of systems and relationships. An attempt was made at this point to develop an organization chart for the current organization, and to obtain a similar organization chart at two or three points in the past.

The discussion proved quite valuable, yielding much information about the companies. It also helped to convince the management of the integrity of the interviewer. This confidence was important since some companies revealed otherwise secret information and several top executives stated that they would not be as frank and open in their statements if they did not feel that the information would be used with care.

2. Growth statistics. The next step was to develop indices of growth and to gather certain other information necessary for analysis. It was decided to use as measures of growth the figures for total net assets, total gross sales, and total permanent employment. Total permanent employment is defined in this study as those persons employed continuously during the fourth quarter of the calendar year. Cost and profit data was not available, in
most cases, since the companies are either closely held corporations or proprietorships.

Besides their value in showing the relative changes in the rate of growth, asset and sales figures also allowed the computation of an assets to sales ratio. This ratio is particularly revealing for growth studies since it shows the relative cost of achieving a particular rate of growth. It has been used in the form of an output/capital ratio in a similar analysis of total economic growth in countries.

Wherever possible, total employment figures were broken down into line and staff personnel. By this means, a long-run analysis was made of the proportion of line and staff to total employment over the life of the firm. This type of longitudinal study of line-staff ratios provides an interesting comparison with the results of other studies on the subject.

3. Depth interview. The final step was a structured depth interview with the chief administrative executive of the firm or with his executive assistant. The interview was largely concerned with determining the nature of basic management factors at each stage of growth. Stages were defined by comparing empirical evidence of growth with characteristics of the growth model. The questions used to guide discussion in the lengthy interview are presented in Appendix C. Particular emphasis was placed upon
the following factors: business and personal objectives, policies, leadership, organization, communication, morale, innovation, investment, and planning for growth. These factors conform to the chapter outline for this study, thus providing an empirical check upon the hypotheses in the growth model.

The Nature of Business Growth

Having clarified how growth is to be studied in the present analysis, it is next important to determine just how it is to be measured. The measures used depend, to a great extent, upon the exact meaning that is to be given to "growth."

Let us consider some of the more important ways in which the word "growth" is defined:

1. The achievement by a firm of an increasing share of industry sales. In this sense, a firm might have increasing, continuous, or declining total sales, and, when in a declining industry, be classified as a growing firm.

2. The achievement by a firm of a greater share of the national product. Measured in current dollars, the volume of business in this country today is over six times what it was twenty years ago. Thus, if a company's sales are now only six times what they were then, by this measure it would not be considered to have grown.
3. An accelerated rate of increase in sales, assets, or some other measure. By this definition, a company which accelerated from a modest yearly rate of growth to a more rapid rate of growth would be considered a growth company.

4. An increase in absolute assets, sales, etc. It would be quite possible, using this definition, for a firm to achieve a yearly increase in the growth measure used, but to have a declining yearly rate of growth.

5. The achievement by a firm of a secular increase in sales or assets, in spite of periods of cyclical decline. A growth firm by this definition would thus be one which illustrated a long run increase in its growth index, even though there would be occasional periods of cyclical decline.

6. As the term is used in this study, growth is (a) that process which results in an accelerated increase in assets, sales, and employment, and (b) the progressive changes within the firm which permit this process to take place. Thus, the ability for a firm to grow is largely dependent upon its ability to meet certain opportunities for sales or production expansion and to overcome certain obstacles attendant to change in size. The opportunity to grow is "restricted to the extent to which the firm does
not see opportunities for expansion, is unwilling to act upon them, or is unable to respond to them."¹⁰

The size of a firm may increase through two types of growth. These are external growth and internal growth. External growth takes place when a firm increases its size by taking over or combining with the assets of another existing enterprise, as in merger, consolidation, or acquisition. Under such circumstances, the growth of a firm measured by its total assets would show rapid increases over years of merger activity.

Internal growth takes place when a firm exploits the opportunities for expansion in a single product base, or creates and exploits additional product bases, through development of resources within the firm. A product base differs from a single product. The base may contain many products which are refinements, adaptations, and variations within a body of technology and resources of a similar nature. The number of products in the base may vary from company to company. Some retain only one product as a base while others constantly expand the number of products as their experience and resources present new market or production opportunities. This proliferation of products is within a single product base, however, so long as the

new developments are within the established framework of technology, administration, and distribution.

The establishment of a new product base, on the other hand, often marks an uncertain step into a new area of resource utilization. Management must gain experience in dealing with different markets, technology, and product uses. Again, various products may develop as the firm expands its managerial and productive resources in the new area.

It is considerably easier to recognize the product base in a firm than it is to differentiate individual products. For example, the product base of one firm contained household pillows, slippers, and accessories, all produced through similar technology, managed by the same group of administrators, and distributed in the same class of outlets. Had the company begun molding plastic containers for sale to other manufacturers the establishment of a new base would have been necessary. Yet to determine whether sofa cushions of different coverings or filler are different products is more difficult. Similarly, one can question whether two identical items with different brand names are two different products.

The literature in business and economics offers little help in defining a single product. One writer may prefer to define it in physical terms, another by its ability to
provide want-satisfying utility. Since the differentiation between products in a base is not essential for purposes of this study, we shall define a "product" without considerable analysis. For this purpose, a product may be thought of as a bundle of value, tangible and intangible, as viewed by the consumer. If the consumer does not differentiate between two items on the basis of service, brand, quality, cost, or satisfaction, then the items may be considered two of the same product.

The significance of growth through the development of internal resources in contrast with external growth has not been stressed in previous theory or research. In the few studies of business growth that have been made either the difference between internal and external growth has not been defined, or else attention has been directed toward external growth. As a result, such studies have been unable to deal adequately with the managerial and organizational changes associated with internal growth. In an effort to make a more intensive analysis of these internal changes, the present study has avoided firms which have embarked upon external growth or which have added new bases.

By purposely limiting the firms in the study to those which have expanded internally to exploit a single product base, the firms studied are comparable to the analytical
growth model. The rate of change may be measured by some index of growth like sales, assets, or employment without experiencing the difficulty of deciding what part of these measures was the result of growth in a single product base. Were the case otherwise, with merger activity or other bases included, the total figures of assets or sales would be meaningless as indicators of the activity in one base.

A Growth Firm

From the preceding discussion it should be obvious that the word "growth" has many and often vague meanings. Growth is a relative term, measuring in various cases the progress of a firm against local, area, national, or industry rates for profits, share of market, or some other measure. Such definitions are sometimes misleading. For example, if profits are correlated to both growth and size, then a growing firm may still not achieve the profit rate of its larger, stable counterpart and, therefore, could not be classified as a growth company.

Such definitions of business growth are analogous to the problem of describing the growth of human beings. For example, if we set some measure of height as a minimum limit of tallness, then all those persons above that limit are considered to be a "growth" group. Yet all of the persons considered, whether above or below that measure will have "grown" in the sense that they will have passed
through a predictable pattern of change during their life-times. This pattern, which might be measured by the rate of change in their height, would include all of the biological, psychological, and social changes normally expected in the life-cycle.

The present study of business firms is directed at the life-cycle of the organization. Its purpose is to study the processes and patterns attendant to the accelerated increase in assets, sales, and employment stemming from internal growth. Unlike human beings, however, the attainment of such a growth cycle in firms is the exception rather than the rule. A firm which benefits from autonomous changes in the market, or the firm which adds to its resources through merger or acquisition would not be included in this concept of growth. Neither would have experienced the dynamics of induced internal acceleration of its resources. Both would otherwise remain unchanged.

A growth firm in the sense that the term is used in this study is one which has managed to generate a take-off into a period of accelerated sales, assets, and employment through the exploitation of an innovation. We are interested in the process of growth within the firm, in an effort to discover how a small firm may induce such a process, and the consequent internal changes which follow.
Measures of Growth

The use of sales or assets as measures of internal growth in one base would not be possible, were other bases and external growth included. Since this restriction has been made, however, one may use such a gross measure to indicate the growth and development in a single product base. The next logical problem is to survey some of the measures of growth that are available.

1. Total sales. Total dollar sales represent the value of the output of the firm and its gross revenue. When the measure is to be used to represent growth over time it should be noted whether any other sources of revenue appear. Sales figures can also be distorted by an upward or downward trend in prices.

2. Total employment. Organization size over time may be determined to a certain extent by the total number of employees. The measure suffers from the effects of optimism, poor planning, and overhiring, all of which tend to distort the picture of size. It also suffers as a long-run measure from the fact that a trend to fewer hours in the average workweek would require more employees, causing an exaggeration upward. This tendency is offset to some degree by the introduction of labor-saving devices, which have the effect of understating the employment measure.
3. **Income.** Net income before or after taxes might give some indication of growth over time, especially when compared with sales and asset figures. The measure is somewhat limited by the fact that owners in small corporations may take irregular amounts of money out of the firm in the form of loans, drawing accounts, bonuses, and salaries. Thus factors related to the owner's non-firm environment may affect the final measure of profit.

Differences in payment policies and conditions of ownership also vary between different companies; to such an extent, that the income measure of growth is not satisfactory. Finally, some firms are much more willing to release sales or asset figures than they are to release information on profit.

4. **Total assets.** The total value of current and depreciated fixed assets provides an estimate of the workable capital invested in the firm and, therefore, its size. Asset figures will vary when measured over time for several reasons. First, price changes from a decreasing dollar value may be expected to overstate asset value. Second, this upward bias is offset to some extent by the introduction of capital saving assets which tend to underestimate trends in asset value when measured over a period of years. Third, any change in public or private depreciation policy can cause an abrupt shift in asset value from
one period to another. Finally, asset value is subject to a variety of other forces that would cause some degree of bias over time: changes in the composition of output, changes in the proportion of fixed to variable capital, changes in the prices and quality of inputs, changes in machine life, and, simply, changes in accounting methods.

5. Measures used in this study. Other studies of business growth have relied on at least one of the above measures as indices of size. In the present study it has been decided to use three, employment, sales, and assets, in order to provide a cross-check upon growth trends in the same company and to reach some conclusion as to the most appropriate measure for future research.

As is customary with long run studies, no effort has been made to use deflated indexes or to try to compensate for changes in technology. Such adjustments are generally impractical since they cannot hope to account for all of the varying trends within the indices and do not add much value to the indices as measures of relative growth. Further, since the primary reason for using these indices is to show a change in the growth rate, for the purpose of defining growth stages, that part of the index that is not balanced by various upward and downward trends is not of serious consequence.
In summary, the present study presents both an analytical growth model and longitudinal empirical growth studies of actual business experience. The measures of growth which have been selected are employment, sales, and assets.
CHAPTER II
FIRMS IN THE PRESENT STUDY

The Meaning of a Firm

In seeking to define a pattern of growth for business enterprise one soon runs headlong into the problem of deciding just what is meant by a "firm." For example, should General Motors be considered a single firm or a collection of firms? Is a holding company a firm? Do two merged companies become a single firm?

As a start in constructing a workable definition, one may first consider the various ways in which the firm, or business enterprise, is viewed by others:

1. An economic abstraction. In the literature of economics, the firm is viewed as an abstract collection of scarce resources. It becomes the basis for a microeconomic analysis of prices and resource allocation. In this theory, growth means an increase or decrease in the output of a given product or group of products and the "optimum size" of the firm is the lowest point on its average cost curve.¹ To use this static view of the firm one must

assume that the same products continue to be produced and that technology, management ability, and the size of the market remain the same. This concept of the firm is therefore unsatisfactory for an explanation of growth, as defined in the present study.

2. A financial entity. In another sense, the firm is viewed as a financial entity. Here the criterion of membership in the firm is some degree of direct or indirect ownership. Thus, by this definition, the vast holdings of the Du Pont Company would be considered part of the "firm." The definition would also include holding companies who exist as firms solely on the basis of ownership in the assets of other enterprises.

There are objections to this definition. First, there must be some point in the various degrees of possible ownership, when a partially-owned business would not be considered part of the firm. A case in point is the Du Pont ownership of General Motors Corporation stock, for General Motors would not normally be considered part of the Du Pont Company. Second, the ability to exert control over the partially-owned business may also be a criterion of membership in the firm. Third, the strength of the subsidiary's image as an individual unit may affect its status in the firm. For example, while the General Tire and Rubber Company owns approximately 85 per cent of the stock
in Aerojet-General Corporation, the subordinate unit has kept much of its own identity as a separate enterprise. Finally, such factors as decentralization, product differentiation, company management philosophy, and historical policy may also affect the degree to which financial ownership is significant as a criterion of participation in the firm.

3. An administrative organization. Another way in which the firm is defined is as an administrative organization. An organization is defined as "any group of individuals that is working toward some common end under leadership."² An administrative organization is usually viewed as that organization in which all persons are vitally concerned directly or indirectly with the creation, distribution, or capital provision of salable value; the relationship of these people is clearly defined by the lines of responsibility and authority between them. In other words, the people in an administrative organization are vitally connected through their cooperation in the achievement of the firm's primary service objectives.

As it is defined here, a large and complex organization like General Motors would be considered a firm, as would each of its federally decentralized divisions. By

federally decentralized is meant a nearly autonomous division which has its own product and market, and its own profit or loss responsibility. Thus, with this definition Aerojet-General might quite logically be considered a separate firm.

This definition of the firm has always been quite suitable for a scientific analysis of the management and organization of a business enterprise. It provides a timeless, graphic picture of the relationships that exist. For purposes of growth study, however, a slightly different emphasis is needed. What is wanted is to emphasize the fact that a firm lives and grows because of the growth and development of its products and people. To do this we shall view the firm as analogous to a living organism.

4. An organization of life cycles. From another point of view the firm may be thought of as an organization containing one or several product bases, each of which has a birth, growth, and maturity analogous to an organic life cycle. In these terms, the firm, like the organism, grows and develops according to the growth forces within it and the pressures from the environment which surrounds it. When only one product base is present, one would expect the pattern of firm growth to be an identity with the pattern of growth in the product base. Once other product bases are added, however, the pattern of the product
life-cycles is not indicated as clearly by the total measures of business activity.

For example, the indices of growth used to measure the development of the firms mentioned later in this chapter generally follow an S-shaped pattern characteristic of biological growth. Were these firms to have more than one product base, however, the total sales and assets measures used would not give a true picture of the growth cycles within the firms. It is this confusion of several cycles that has weakened the two principal empirical studies on growth that have been made. Both linked conceptually the growth of the firm to the pattern of total sales or assets, failing to note the real forces within.

One of the two authors, Edgar O. Edwards, mentioned that the growth trends which appear as relatively straight lines or as a long run logistic curve, should more accurately appear as several logistic curves superimposed upon one another. Presumably, each of the smaller logistic curves would be a single life cycle taking place within the firm. It is for this reason that the present study

3These are Edgar O. Edwards, "Studies on the Growth of the Individual Firm With Applications to Firms in the Chemical Industry," and Gertrude C. Schroeder, The Growth of Major Steel Companies. Both confined themselves primarily to published data, using firms with lives of as much as sixty years. They were unable, therefore, to study the more revealing growth cycles of individual product bases.

4Ibid., pp. 105-112.
concentrates on firms in their first life cycle and that the firm is defined as an organization of these life cycles.

**Selection Criteria**

In order to make the empirical studies of real companies meaningful in terms of their ability to judge the applicability of hypotheses in the growth model, it was deemed necessary to set out certain general criteria for selection. By comparing potential companies with these measures, in other words, those which were most suited to the purposes of this analysis were selected.

The selection criteria used and a brief explanation of their purpose are enumerated below:

1. **Single product base.** In order to be included the firm should have had one predominant product base. Thus the record of sales, assets, and employment would indicate the life cycle of the single base.

2. **No federal decentralization.** It was felt that the presence of several parallel profit centers, often accompanied by wide geographic separation as well, would create complexities in defining the life cycle.

3. **Two decade life.** It was felt that by using firms with relatively short lives, more information would be available and the statistical data would be subject to less bias from price changes, technological changes, etc.
In two cases used the total history of the firm could be traced back much further, but since the growth cycle itself fell within the past two decades, they were included.

4. **Less than 500 employees.** Upon a first cursory examination of the degree of effort involved in digging out old information, it soon became clear that the firms to be included should have less than 500 employees. When one must review each job title for each employee for each year in the company's history, the number of people studied must be kept at a reasonable minimum.

5. **Evidence of growth.** Since the purpose of this study is to analyze growth processes, it was felt that there should have been some evidence of growth before the firm was included. This evidence took the form of opinions by Chamber of Commerce officials, published evidence of growth in local or national newspapers, and signs of growth like new buildings.

6. **Willingness to cooperate.** In most cases, even the busiest executive was quite willing to cooperate with the study. Only two individuals were unwilling to display the kind of behavior necessary for the professionalism of management.

7. **Private ownership and control.** Government owned or controlled enterprises are outside the purview of this analysis.
8. No strong external limitations. The firms selected are not limited by external pressures against growth. Such limitations would be a shift in consumer taste, strongly deterrent cyclical pressures, or competitive restriction by larger firms.

In sum, these selection criteria help to suggest the type of firm that has been selected for study. These criteria are also useful in defining the assumptions that must be made if general principles are developed from these growth studies.

**Firms Included in the Study**

The following is a brief description of each of the firms selected for study. A detailed history of each company is included in Appendix A. All have achieved a take-off, some after many non-growth years. Two of the firms have declining growth measures, having been unable to achieve stability after their initial growth.

1. **Company A.** Company A was started by two brothers, Bill and Henry Case, in order to develop, produce, and sell an electronic measuring device. The basic technique had

5 It is recommended that the case histories in the Appendix be read at this point, particularly by those wishing to follow the empirical and historical evidence closely during the course of this study.

The names and locations of the firms have been disguised. The confidential nature of many remarks by their managers and the points of competitive advantage that were revealed have necessitated this care.
never been utilized in other than laboratory experiments prior to its development by the brothers, so that they may also be credited with starting a new division of the industry.

The firm experienced phenomenal growth during its early years and has gradually developed its executive leadership and organization structure in preparation for the maturity of the firm. Throughout the growth of the firm its president, Bill Case, has had a dominant influence upon the people and operations of the firm. He has changed his pattern of leadership, however, from a centralized entrepreneurship to that of a decentralized executive leader.

2. Company B. Company B sells restaurant and bar equipment plus retail appliances. Institutional installations of equipment are part of a general design or remodeling service provided by the firm. The company was taken over by its present president, George Boury, after a decade at the brink of insolvency. Mr. Boury was able to generate a take-off into sustained growth by exploiting a local market opportunity for such equipment following World War II.

The firm experienced approximately six years of rapid growth. Then, instead of stabilizing the firm at a higher level, Mr. Boury chose to devote much of his attention to
the exploitation of new product bases, leaving the original one to decline. He continues to be the dominant entrepreneurial figure in his several enterprises.

3. **Company C**. Company C is a plastics extrusion company, one of four or five firms able to do specialized extrusion work. The present chief executive, Phillip Davis, had invested in the firm at its inception and took over the management of the company after nearly a year of unsuccessful operation under the first owner-manager. The same year Davis was able to convince another man to join the firm as an executive and minority stockholder. The two men have since shared the management responsibility for the firm.

The firm has continued a regular pattern of growth to the present. Yet even though sales are past the million dollar mark, the firm continues to be managed informally with dual authority at the top and an absence of general administrative management. The company has reached the point where organizational and managerial problems have become serious and a move to more scientific management appears necessary.

4. **Company D**. Company D is a large music retail and studio operation. The firm was operated with only mild success for nearly five years until its purchase by the present owner, Glen Gibson. Mr. Gibson was able to achieve a remarkable growth rate following his exploitation of an
untapped demand for accordion lessons throughout the adjoining part of the state. Rather than stabilize the firm through the institution of sound management and organization, Mr. Gibson turned his attention to several new enterprises. Crisis eventually forced a reorganization of the music business, but too late to restore the previous peak of sales. The firm now operates in a highly decentralized fashion, with division heads having authority that was once centered in the hands of the president.

5. Company E. Company E is a manufacturer of fabricated notion items sold principally to department stores. The firm has particular skill in the utilization of foam rubber in its products. It has achieved a take-off and growth to a partial degree of maturity under the dynamic leadership of its founder and secretary-treasurer, Jason Barth. The nominal president functions as the vice-president in charge of sales in a sales office in another part of the country.

The firm has achieved its growth in sales to nearly five million dollars a year partially through its exploitation of a sequence of innovations. These innovations have been either new products to meet an otherwise untapped demand or products previously on the market produced at a lower cost, thereby meeting the needs of a new market. As a consequence of this policy the product base has broadened with
the addition of new products. The shift from unstructured leadership to rational scientific management is evident in the development of the firm in recent years.

These five firms have been studied in depth. The analytical growth model to be presented in summary form in Chapter IV and in detail in subsequent chapters will be compared with empirical evidence of a qualitative and quantitative nature derived from a longitudinal study of the five firms just mentioned. Since growth, as defined, does not take place in firms automatically as it does in living organisms, it was necessary to select firms for study which had shown evidence of an internally generated growth cycle.
CHAPTER III

PREVIOUS STUDIES OF GROWTH IN THE LITERATURE

The Purpose of This Review

The purpose of this chapter is to review the important contributions on the subject of growth in management and other literature. A review of the literature serves three main ends: First, it permits an appraisal of the degree to which the subject of growth has been dealt with in management literature, and, therefore, the extent to which the present study can be a contribution to that literature. Secondly, it permits an analysis of the extent to which research on growth has been done in all disciplines, and the degree to which these other studies are applicable to management problems. Thirdly, a review of the growth models proposed by various authorities helps to clarify the values and limitations of the model in the present study.¹

¹One must add that it is surprising how many earlier examples there always are of what was originally felt to be an original discovery or formulation. Edith Penrose has expressed this attitude quite precisely when she said, "Indeed, after having laboriously worked out for myself what I took to be an important and 'original' idea, I have often had the disconcerting experience of subsequently finding the same idea better expressed by some other writer." The Theory of the Growth of the Firm, p. 2.
The growth model in this study traces the change and development in a company through the three stages of its life cycle. That is, it shows (a) change and (b) stages. Not all of the growth theories present both of these factors. Some tend to emphasize the characteristics of institutions under study at different points in their growth history. Others emphasize the changes that take place without delineating stages. Because of this difference in emphasis, it is useful to point out first several examples of the use of "stages" in the literature and then to view some of the more important growth theories.

Stages of Growth

The stages of growth that are discussed in the literature deal with many different kinds of institutions. They cover the growth stages of business organizations, industries, product cycles, and political, religious, or social organizations. While it might be argued that each of these has unique characteristics which differentiate it from the others, there is a surprising agreement in the shape of the growth function and in the kind of leadership that is characteristic in each stage.

One of the few theories of growth in the management literature is presented by R. C. Davis.\(^2\) According to

Davis, the three stages of industrial growth and the leadership characteristic to each stage are the **pioneering stage**, with leadership by the owner-manager; the **stage of exploitation**, with leadership by the entrepreneur-promoter; and the **stage of stabilization**, with leadership by the professional executive. The owner-manager operates a small business with mechanical or technical knowledge, dealing primarily in problems of operative management. Eventually, if the industry is to enter into a period of rapid growth, innovation must take place. At this stage the situation will require the services of an entrepreneur or promoter type of leader, often characterized by his "good personality, polish, prestige, enthusiasm, sales ability," and knowledge of financial organization.³ The third stage begins as the rate of growth slackens and organizational problems become important. Greater emphasis is placed on efficiency and economy as the industry becomes highly competitive. The leadership in the third stage is that of the professional executive who plans, organizes, and controls the operations of the large, complex organization.

³Ibid., p. 138.

⁴The Great Organizers, chaps. ii and iii.
In it Dale wrote of various kinds of management and leadership methods which he found in studying four companies historically. While he is hesitant to generalize his findings, Dale nevertheless implies that there are at least two stages of growth. The first is under the leadership of what Dale calls "genius management." Examples of such men were General Henry DuPont, who was responsible for the growth and development of the DuPont Company during its development prior to 1889, and William C. Durant, the promotional genius who put together the General Motors complex between 1916 and 1920. Both of these men correspond to the entrepreneur-promoter type in the second stage of Davis's theory.

Both DuPont and General Motors were saved from their eventual downfall under genius management by the institution of what Dale calls "systematic management." This systematic management was the institution of sound scientific management practices, including reorganization and decentralization. H. M. Barksdale at DuPont and Alfred P. Sloan are given major credit for instituting such practices in their companies. Both of these men correspond to the professional executives in the third stage of growth in the Davis model.
The third example of stages of growth in the management literature is by Peter Drucker. Drucker says that there are four stages of business size: the "small" company, the "fair-sized" company, the "large" company, and the "very-large" company. The "small" business is operated by one or two men at the top who may combine running the business with operating a function like sales or manufacturing. There may be one level of supervision between the top man and the workers. The "fair-sized" business is often a difficult stage for the top manager, since he must begin to deal with problems of organization. By this time the top operating job has become a full time assignment and an executive team is beginning to be formed. Also, problems of organizing technical specialists or "staff" men are beginning to be felt.

The third stage of growth is the "large" business. By this time the job of setting objectives or of operating the business is done on a team basis. Later, in the "very large" business both of the functions are performed by teams of executives. Also characteristic of the final stage is the presence of federal decentralization and a clear division between administrative and operative management.

Besides these discussions of growth stages in the management literature there have been contributions to the subject from members of other disciplines. One of the most interesting of these is that of Max Weber. Weber's classification of types of authority may also be considered for present purposes as a classification of types of organization. While a mere classification of types is by no means a clear-cut definition of growth stages, the relationship between his classes and the stages of the management authorities mentioned earlier is quite close; because of this close relationship it would seem worthwhile to include the classification in the present discussion.

The first class, according to Weber's theory, is the traditional organization. Positions within the organization are assigned on a basis of custom or heredity, developing into predetermined "classes" of opportunity. The administrative staff of the traditional organization is typically made up of the "official family," including relatives, traditional associates, and "favorites" of the ruling class. There is an absence of rational systems of organization and management.

The second type of organization in Weber's classification is the charismatic. This type rests on the devotion
of subordinates to their leader. All followers in the leader-oriented group are especially sensitive to the whims of the leader. He makes the important decisions. He retains the right to command anyone in the organization. He determines the mission and the day-to-day rules of organizational behavior.

The third type of organization in the classification is the bureaucratic. This is a rational organization based on the concept of legal authority. Work is organized into efficient areas of responsibility, then effective personnel are obtained to fill the designated jobs. Recruitment and performance are judged on a basis of clearly defined standards of administrative or operative competence.

Regarding this type Weber stated,

Experience tends universally to show that the purely bureaucratic type of administrative organization . . . is, from a purely technical point of view, capable of attaining the highest degree of efficiency and is in this sense formally the most rational known means of carrying out imperative control over human beings.7

The use of stages of growth for analysis purposes is also found in economics, particularly in economic history. One definition of stages has arisen by researchers who compared the stages of national growth in oriental countries with growth in occidental nations. According to

7 Ibid., p. 337.
their classification, western nations have gone through three characteristic stages: 

First, is the feudal culture. This is a traditional culture with fixed contractual relationships between clearly defined social classes. The economy in such circumstances is static, without the necessary internal forces to generate growth. The second stage is that of dynamic politico-economic expansion. It is characterized by growth, ideological controversy, and great individual mobility. This stage may be contrasted with the third stage of maturity known as the period of consolidation. In the third stage one finds greater predictability in career development, pressures to conformity, and a better organization of production factors.

Thus, this classification follows Weber's rather closely.

Contrasted to the stages in the preceding classification is a more critical analysis of cultural changes presented by David Riesman. He follows an S-shaped population growth curve typical of the western nations, classifying the stages of development as social dependence on tradition-direction, inner-direction, and other-direction. The tradition-directed society is one with potential for

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growth. In it the behavior of the individual is dictated by the ritual or routine defined by his immediate family, clan, caste, profession, or local society. The tradition-directed person has little conception of progress, feeling that there are no new solutions to the customary problems with which he deals.

With a drop in the death rate and a sudden increase in the rate of population growth the social character changes to that of innerdirection.

Such a society is characterized by increased personal mobility, by a rapid accumulation of capital (teamed with devastating technological shifts), and by an almost constant expansion: intensive expansion in the production of goods and people, and extensive expansion in exploration, colonization, and imperialism.\(^\text{10}\)

The inner-directed person is of a highly individualized character, yet is strongly oriented to achieving patterns of behavior established in his youth. He is strongly goal-directed and able to work toward these goals in spite of external change and conflict.

The other-directed person is found in the third stage of growth. He is highly responsive to the dictates of his peer-group, becoming a good "organization man." He is unable to "go it alone," preferring, instead, to be shaped by the order of society. Reisman has said that he has the

\(^\text{10}\)Ibid., p. 30.
character of the middle class -- the bureaucrat, or the salaried employee in business.

Reisman and others have pointed out the close relationship between stages of social development and stages of economic growth. It is interesting to note, also, that the writers in these areas show no hesitancy in implying a similar generalization about organizations of all kinds.

A final reference may be made to the use of stages of development in advertising theory. Otto Kleppner has defined three stages through which a new product will pass, in an effort to show the type of advertising which should be initiated at each stage. He calls the stages the pioneering stage, the competitive stage, and the retentive stage. In the pioneering stage the main job is the introduction of the product and the communication to the market that the new innovation is available. Old habits must be overcome. In the competitive stage the product will have been accepted but substitutes will also be available. The job of advertising at that stage is to convince the buyer that the present product is better than similar items offered by others. Finally, when an established market is developed for the present product, the advertiser must remind the established customers to continue

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their routine of buying the product. Should the product need further growth, a new innovation is added to the old item and the cycle is begun again.

This classification of stages, like the other presented earlier, illustrates the usefulness of the method for analysis. It might also be noted that, while different institutions and periods of time are discussed in the various theories, all have a strange ring of similarity. Some emphasize the type of leaders in each stage, others the type of organization; yet all speak of the same thing -- the stages of growth of an organization which seeks defined goals through the actions of people.

The purpose of this section has been to illustrate the use of "stages" in analysis of growth. In the following section attention will be shifted to more detailed examples of analytical growth models. Two of the four examples also contain stages of growth, while two do not.

**Examples of Growth Models**

The following are examples of analytical models that have been used to explain the growth of business organizations, unions, nations, and mass movements. While only the first is of direct value to business growth, all are of some consequence, as will be seen.
1. **Business growth.** The only elaborate theory of business growth is that presented recently by Edith Penrose.\(^{12}\) It is unfortunate that she was forced to deal with what is basically a problem of management theory by relying primarily on her own background in economics.\(^{13}\) It is also paradoxical that although she uses frequent analogies to organic growth, she carefully avoids a direct reference to a biological growth curve.\(^{14}\) Her primary object to life-cycle analogies is that they do not account for mergers or external growth, yet she explains this objection herself by clarifying the difference between various kinds of growth, with external growth being outside the normal cycle.

She emphasizes that the firm is both an administrative organization and a pool of productive resources. The economist, she says, tends to concentrate upon the latter.

\(^{12}\) *The Theory of the Growth of the Firm.*

\(^{13}\) She recognized the fact that it was a management problem as seen in the following remark: "There is, incidentally, a great deal of useful information available in the 'managerial' literature which has, I think, been sadly neglected by economists who, however, are gradually beginning to take more seriously literature of 'management.'" *Ibid.*, p. 4.

\(^{14}\) This paradox may be partially explained by the fact that she published an earlier article in which she strongly objected to other biological growth theories. See, "Biological Analogies in the Theory of the Firm," *American Economic Review*, Vol. XLII, No. 5 (December, 1952), pp. 804-819.
In doing so, he assumes that the management resource is a fixed factor, causing increasing costs to the expanding firm as more costly marginal factor units are added. Objecting to this assumption, Penrose says that management is not a fixed factor, but, instead, expands its productive services as it gains more business experience.

In planning growth, the firm considers its inherited resources -- that is, its available factors of production, including management -- and the resources that must be obtained from the market. Growth or expansion will draw on some of the services of present management and therefore the services available from such management constitute the limit of the rate of growth. In other words, the maximum rate of growth that is possible is set in part by the increase in available management services.

Management services, as resource inputs, are not measured by the physical number of managerial personnel in the organization. Rather, they are generated by the ability, experience, enthusiasm, and teamwork of the management group. As the management group works together in the achievement of previously planned objectives it gains experience which increases its resources for future operations. The limits to growth set by managerial capacity cannot be overcome by the addition of new executives, since it takes time (and resources) to recruit and
train such new men and time for these new men to interact as part of the team. In addition, as Penrose stresses, present resources are concerned with planning for the future. Executives for such future operations may be obtained at some later date.

Where managerial resources are limited by the small size of the organization, the firm may have to work itself through its plans before sufficient resources are released to permit the planning and production of new products. Where the firm is large, containing a similar volume of resources, then a constant release of services from various projects is possible. It might be mentioned in passing that Penrose would have a more forceful argument for the significance of business size and the release of its management resources were she to consider the value of technical staffs in constantly providing resources not directly utilized in the performance of previous plans.

In the absence of external limits to growth the firm will continue to grow as its pools of unused resources, together with more experienced management, create a productive opportunity which may be exploited. The firm develops increasing strengths in certain areas, like technology or market position, which allow it a competitive advantage. The administrative organization of the firm is reorganized as growth takes place, so that
economies of scale are not a problem. In other words, the decentralization of administrative management precludes the development of decreasing returns to scale which some economists might normally foresee.

There are, of course, some firms which do not grow according to their growth potential. These are explained by one of four main reasons: (a) Some kinds of business are unsuited to large firms; examples would be local jobbing operations or some kinds of service establishments. (b) Some large firms have a policy that protects small firms and permits their existence; an example of such a policy is that of "umbrella" pricing, i.e., the policy of a larger, more efficient firm of maintaining product prices at a level which does not force smaller high cost firms from the market. (c) Some types of business permit easy entry; in these lines the mortality is high, with firms seldom becoming large. (d) Some firms only exist because large firms have not got around to driving them out of business with aggressive competition.\(^\text{15}\)

This theory, however, assumes an "opportunity" for a small firm to grow large. When it reaches large scale operation it is to be expected that the rate of growth will

\(^{15}\)Penrose might also have included the fact that many small firms exist because of their unique specialty, which, while not exploited, nevertheless permits them to hold a constant segment of a market.
decline, even though an absolute increase continues. It is noted that this restriction on the growth rate is not caused by an increase in administrative expense or complexity, as has sometimes been supposed.

For any given product larger firms probably do require a larger margin over direct cost for profitable operations, not because of larger administrative overhead, as is sometimes alleged, but because of the kind of oligopolistic competition in which they become engaged.\(^{16}\)

It is clear that the central theme of this theory is the ability of the management of a firm to grow and develop, and to reorganize resources according to the opportunities which occur. In stating this theme, Penrose is simply removing one of the basic assumptions used by economists and substituting sound management theory. One cannot quarrel so much with what she has said as with what she has left unsaid. She would do well to differentiate between line and staff units, to define stages of growth, to recognize the difference between management functions, and to include in her theory the role of functional differentiation and other management concepts.

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\(^{16}\)Penrose, *American Economic Review*, p. 226. This point has been proven by Seymour Melman, who has shown that as the size of the firm increases, its administrative expense per dollar of sales decreases. At the same time production costs per dollar of sales are nearly constant regardless of firm size. Thus, larger firms have a profit advantage stemming from lower administration costs. "Production and Administration Costs in Relation to Size of Firm," *Applied Statistics*, Vol. III (March, 1954), pp. 1-10.
2. Union growth. Another analytical presentation of institutional growth has been made by Richard A. Lester. In his thought-provoking book Lester makes an implicit statement that the union movement has gone through at least three stages of growth: the first was a pre-growth period, probably the years preceding 1932; the second was a rapid growth and development period, from approximately 1933 to 1946; and the third was "institutional middle-age" from 1947 to the present. Empirically, his implied stages are defensible, since the only other periods of rapid union growth grew out of unusual wartime conditions in the Spanish-American War and World War I. Within Lester's period of rapid growth, union membership grew from 5.2 per cent of the labor force to nearly 24 per cent.

The 1930's and 1940's were characterized by their militant turbulence and internal union strife. Nearly


18 Empirical support for Lester's description of the bureaucratization of the labor movement is suggested by the fact that after a rapid rise in the percentage of unionization of the labor force during the period from 1935 to World War II, the percentage has remained at about one-third of the total labor force since that time. Membership in certain segments of the labor movement has even declined. Other factors also point to a dim future for the labor movement: (a) The organization of large industrial firms -- easiest and least expensive to organize -- is largely complete. What remain are largely small firms and white collar workers. (b) Public sentiment tends to be against the labor movement as evidenced by the
every national union was identified with the efforts of one or a few dominant leaders. Organizational efforts were most important, with little effort devoted to the subtleties of insurance programs or supplementary benefits. Rivalry between unions and raiding of membership was quite common.

In the 1950's the union movement had moved into a period of institutional middle age. The formative stage of the union movement is now largely completed, and no new conquest or startling innovations are expected. The only opportunity now recognized is the unionization of white collar workers, and this is not expected soon.

Most important national unions have evolved from militant organizations to orderly, corporate-like operations, with staffs of experts, large sums of money to invest, and a close interest with political and community affairs. The union leader has become an organization man.

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restrictive Landrum-Griffin Act of 1959 growing out of the McClellan Committee hearings. (c) The joint federation of the AFL and CIO has never been successful and may develop an open rift again. (d) Finally, labor's stronghold during the past few decades, the fabricating and processing industries, have been leaders in automation, eliminating manual, non-professional, and non-clerical occupations. The present writer shares the feeling with both friends and foes of labor that this condition could create serious consequences if the government should take over those functions which the weakened labor movement could no longer perform.
The top union leader is called upon to be a good administrator besides showing leadership ability.

Particular signs of the process of maturation in the movement are its considerable loss of missionary zeal, a halt in the rate of membership growth, greater centralization of control at national headquarters, and an entrenched political machine which frowns upon insurgency. Action is less aggressive since rivalry has been reduced by mergers and no-raiding pacts.

The problems with which union administrators must deal have changed. Now they face such issues as insurance and investment problems, or technical questions of law, wage structures, or fringe benefits. Dues collection and organizational maintenance are much less time-consuming and troublesome, with the rights of check-off of dues, union security, and government certification. The union is assured of a monopoly of representation through an election. Partially as a result of all this protection and security, the use of strikes and violence has declined.

The changing economic, political, and social environment has done much to support this process of union maturation. The sharp differences between blue-collar and white-collar workers have disappeared. As living standards have risen, members and union officials have acquired middle-class views. Material comforts have replaced
organizational enthusiasm. This is especially true where top union officials are less and less differentiated from business executives with regard to salary, status, and executive performance.

Automation has shifted employment opportunities away from assembling and processing industries, causing an actual contraction in union membership in some of the large mass production industries. The unions representing the workers in these industries were the leaders in the earlier period of dynamic growth.

As a result of these trends, Lester predicts that the number and power of organized labor is likely to decline in the next decade. He says that manual workers will tend to have middle-class interests, problems, and outlooks. In a sense, the successes of the union movement have robbed it of future vigor. It has achieved many of its goals, and is unable to find new ones.

Although Lester never clearly defines the stages in his growth theory, it is evident that he presents three stages that are very similar to the stages described earlier. In this respect his theory is unlike the Penrose theory of business growth.

3. National growth. The most complete analytical presentation of a growth model is that recently propounded
by W. W. Rostow for national growth. Rostow's model contains clearly defined stages as well as a description of the process of change. In recent formulations of the theory Rostow has used five stages, though the same phases were presented earlier in only three. He sets forth his analytical model and then supports his hypotheses with empirical evidence, as will be done in this study.

The first stage Rostow calls the traditional society. This is one based on pre-Newtonian science and technology; that is, before man came to view with the somewhat oversimplified viewpoint that the world is directed by a few definable "natural laws." Output per head was relatively fixed, since there were few general scientific or technical breakthroughs that could be generally applied. A very high proportion of resources were devoted to agriculture.

As was described in Weber's "traditional society," the first stage finds social organization around family and clan connections. Outlook for the future was limited in such systems. The value system of these societies was

generally geared to what might be called a long-run fatalism; that is, the assumption that the range of possibilities open to one's grandchildren would be just about what it had been for one's grandparents. Nevertheless, it was considered quite possible that an individual could improve his lot during his lifetime.

The landowner was the political leader of the community. While there were various examples of more widespread political systems, they were strongly influenced by landowners in various regions. These men held sway, surrounded by their official family of soldiers and servants. Examples of this stage in the pre-Newtonian world were the dynasties in China, the civilization in the Middle East and the Mediterranean, and medieval Europe.

The second stage in Rostow's five stage model, included in the first stage of his earlier three-stage model, is the period in which are developed the preconditions for take-off. It is the period when the old beliefs and institutions begin to break down, preparing the way for rapid growth. In the earlier systems this took place in the late seventeenth and early eighteenth centuries as exploration, innovation, and discovery expanded world markets and developed new production functions. Britain

20. The Stages of Economic Growth, p. 5.
was the first nation to enter this stage. In recent times, the preconditions are developed in previously underdeveloped nations through the shock of external intervention by some advanced economy.

Once it becomes realized that change is possible and desirable, then definable goals are developed, like national strength, profit, general welfare, or a better life for future generations. To meet and define these goals a new kind of leader comes forward. Such a man is able to assemble the resources necessary for goal-achievement and is willing to take the attendant risks. At the same time investment in social overhead capital increases.

The regional interests are broken down as the spirit of nationalism takes their place. Colonial interests or foreign intervention is rejected in favor of independence. The groundwork has been laid for a take-off...

The third stage in the five-stage model is the period of the take-off. Such was the case in Britain during the 1780's and 1790's, and in France and the United States during the 1840's and 1850's. Russia and Canada were in the take-off from about 1890 to 1914, while India and China have entered their take-off periods only since the 1950's.  

21Ibid., p. 9.
In this period the limits to sustained growth are finally overcome and the country begins its rapid growth upon a geometric progression; this progression Rostow calls "compound interest." According to Rostow, if a take-off is successfully generated, then a surge of technological development is combined with the necessary leadership, finances, overhead capital, and spirit of national purpose.

The rate of investment jumps from around 5 per cent of national income to 10 per cent or more. Industries expand rapidly. Profits are reinvested in further growth. A group of entrepreneurs develops to direct the activities of business. The economy shifts from an agricultural to an industrial base.

At some point, the determination of which is never made entirely clear by Rostow, the take-off stage ends and the nation enters the fourth stage, the drive to maturity. A long period of sustained growth takes place in which 10 per cent to 20 per cent of national income is invested each year and the growth in per capita output is greater than the growth in population.

The economy has developed along many different fronts. New technology has developed new industries which have grown, developed, and declined. Processes have become complex. The nation is able to produce goods efficiently that formerly were purchased abroad. The ultimate of this
development Rostow calls "maturity," the point at which "an economy demonstrates the capacity to move beyond the original industries which powered its take-off and to absorb and to apply efficiently over a very wide range of its resources -- if not the whole range -- the most advanced fruits of (then) modern technology." 22

It has generally taken sixty years for a nation to move from the beginning of the take-off to maturity. Maturity was reached in Great Britain in 1850, in the United States in 1900, in Russia and Canada in 1950.

The period following maturity is the age of high mass consumption. During this stage the leading sectors shift towards durable consumer's goods and a variety of services. The fruits of prosperity are widespread among the population. A large proportion of the population finds itself with excess income above that needed for food, shelter, and clothing, and begins spending on automobiles, appliances, leisure goods, and entertainment. Society shifts from what Riesman has called "workmanship" to "wastemanship." As resources are shifted to benefit the members of society and provide for their security, a welfare state is developed.

22 Ibid., p. 10.
It is at this point of fully developed mass consumption that the United States now finds itself. The exact nature of the future of our society is not clear. There is evidence, however, that Americans are choosing to take part of their income in larger families. There are also obvious signs that new social overhead capital in the form of roads, schools, and welfare agencies is needed.

Rostow's theory has been proposed as a non-Communist manifesto, an answer to Marx. It has "an inner logic and continuity . . . an analytic bone structure, rooted in a dynamic theory of production." It is little more optimistic about our future than any of the early theories, including Marx, however. Perhaps the only positive factor that it yields is that the Soviet Union is following a pattern of development remarkably like that of the United States, with a lag of about thirty-five years in the level of industrial output and a half-century in per capita output. If this is true the problems which we face now will probably be experienced by Russia in future decades.

As was mentioned earlier, authorities have already remarked on the potential usefulness in applying Rostow's lessons on historical growth to the growth histories of individual firms. Such an application has yet to be made,  

\[23\text{Ibid., pp. 12-13.}\]
however, and it is hoped that the present study will be a fruitful first step in this direction.

4. Growth of mass movements. The fourth example of the use of a growth model is presented by Eric Hoffer, in his description of the growth of mass movements. The model is used to describe the development of religious, political, economic, national or social movements.

There are three stages in Hoffer's model: The first stage contains the development of forces which will eventually cause the movement to begin; it derives its leadership from the man of words. The second stage contains the rapid growth of the movement, led by the fanatic. The third stage takes place after the movement reaches its goals and must institutionalize in order to remain; the leadership of this stage is through the practical men of action.

The man of words who leads in the first stage is an intellectual skilled in the use of the spoken and written word. He may be a priest, scribe, prophet, writer, artist, professor, student, or general intellectual. He is a member of an articulate minority that is capable of undermining existing institutions, and planting the idea of change with the masses. In the early stage of their

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leadership, men like Gandhi, Trotsky, Mohammed, Luther, Marx, and Lenin were of this sort.\textsuperscript{25}

The masses may be expected at the beginning of the movement to be basically conservative. They will accept mild reform but not radical change. They are unwilling to listen to the fanatic but they will accept the ideas of the man of words since he does not usually represent any immediate threat to their security.

The man of words persistently wears away at the sanctity of prevailing conditions, finding fault with things as they are and suggesting that there is something better. He formulates a doctrine and a philosophy in appealing to the reason of the masses. The masses, however, prefer faith to reason. "For the majority of people cannot endure the barrenness and futility of their lives unless they have some ardent dedication, or some passionate pursuit in which they can lose themselves."\textsuperscript{26}

The needs of the masses are met in the second stage of growth by the leadership of the fanatic. Unlike the man of words, the fanatic has little respect for the rights of the individuals. Thus he has a certain ruthlessness that is

\textsuperscript{25}Ibid., p. 120. For an earlier statement of the man of words see Henry C. Metcalf, Business Leadership (New York: Isaac Pitman and Sons, 1929).

\textsuperscript{26}Hoffer, p. 128.
quite in tune with the passion of the masses. Once the preceding leaders have made the population aware of certain problems, the fanatic wades in with all his might to "blow the whole hated present to high heaven." He takes the doctrine of reason that was so conveniently provided by the man of words, and twists it into the doctrines and slogans that meet his own purposes. Once the movement is in the control of the fanatic, the intellectual man of words becomes an unwanted, disappointed heretic.

The fanatic feels at home in a state of chaos. He feels a personal freedom only when surrounded by a constant flux which he can interpret as a growing and developing. Often he is a person who is frustrated by an unfulfilled desire to create. He thus interprets the development of the movement as the achievement of something better for himself. His main danger to the movement is that beyond some point, his ardor and optimism may lead it into disruption and decay.

If the movement is to remain, rather than fall apart, it must be taken over by the practical man of action. He will organize it and establish it as a permanent institution. His appearance marks the end of the stage of

27Ibid., p. 131.
rapid growth and the entrance into the third, more stable, stage. When this happens,

A religious movement crystallizes in a hierarchy and a ritual; a revolutionary movement, in organs of vigilance and administration; a nationalist movement, in governmental and patriotic institutions. . . . The institutions freeze a pattern of united action. The members of the institutionalized collective body are expected to act as one man, yet they must represent a loose aggregation rather than a spontaneous coalescence. They must be unified only through their unquestioning loyalty to the institutions. Spontaneity is suspect, and duty is prized above devotion.28

The man of action is not a man of faith like the fanatic; instead, he is a man of law. He has well-defined objectives and supporting principles, together with a plan for their accomplishment. He develops a well-defined organization within which the institution can operate efficiently. He can no longer rely on enthusiasm or persuasion to weld the participants together. He must substitute a dictation of an established order, using whatever tools or methods seem to work best.

Thus it is clear that the movement will have three different kinds of leadership. It is quite possible, according to Hoffer, for one man to adapt himself to the needs of two or even three of the necessary leadership types. Unless he can do so, however, he must be replaced

28Ibid., pp. 135-36.
by another leader with the necessary qualifications, lest the movement collapse.

Hoffer also devotes a great deal of attention to the factors which lead to the change into a period of rapid growth, and to the means by which participants are joined or attracted to the movement. With regard to the former, he says that people are capable of change when the following conditions are present: (a) When they are discontent with their present conditions. (b) When they come to believe that they actually have the power to affect their environment. (c) When they have a doctrine to follow -- a faith in the future. (d) When they are ignorant of the difficulties involved in their vast undertaking.

Experience is a handicap. The men who started the French Revolution were wholly without political experience. The same is true of the Bolsheviks, Nazis, and the revolutionaries in Asia. The experienced man of affairs is a latecomer. He enters the movement when it is already a going concern.29

To be capable of making a change the individual must be willing to sacrifice himself or his present state and to unite his actions with those of others. Thus, those best suited for the second stage of dynamic growth must be discontent in some way. Hoffer lists a number of reasons why one might be dissatisfied, hence a potential convert

29Ibid., p. 20.
for a movement. The reasons may be summarized as (a) those who are poor, but are aware of the possibility of something better; (b) those who have found no satisfactory role in society; and (c) those who are personally ambitious.

These people become willing to fight and die for the movement; that is, to sacrifice themselves for the good of the movement. This willingness is fostered (a) by stripping the individual of his personal identity and making him a part of a group; (b) by endowing him with an imaginary self -- by casting him in a heroic role; (c) by implanting in him a deprecating attitude toward the present and riveting his interest on things to come; (d) by interposing a doctrine between him and reality; and (e) by stimulating within him such fanatical passion that a stable personal equilibrium cannot be achieved.

Finally, once the participants of the dynamic phase of the movement are willing to sacrifice themselves, they must then be bound together by some unifying agent. A common hatred will unify a heterogeneous group. Imitation is a unifying agent by developing uniformity of behavior. Action is a unifier, since active people enjoy camaraderie. A constant suspicion of outsiders will bind a group's attention. Finally, the proper kind of leadership is essential.

Hoffer describes the leader as follows:

Exceptional intelligence, noble character, and originality seem neither indispensable nor perhaps
desirable. The main requirements seem to be: audacity and a joy in defiance; an iron will; a fanatical conviction that he is in possession of the one and only truth; faith in his destiny and luck; a capacity for passionate hatred; contempt for the present; a cunning estimate of human nature; a delight in symbols (spectacles and ceremonials); regard of consistency and fairness; a recognition that the innermost craving of a following is for communion and that there can never be too much of it; a capacity for winning and holding the utmost loyalty of a group of able lieutenants.30

In sum, it is obvious that Hoffer is presenting a growth model under rather exaggerated and unusual circumstances. Nevertheless, there are many similarities between his pattern of growth and the models described earlier. Had he concerned himself more with the first and last stages of his growth model, and less with the second, one might have an even more fruitful source of insights into problems of growth.

Conclusions from the Review

Table 1 summarizes the various growth stages that have been discussed. In some cases the stage is associated with a dominant type of leader rather than a stage classification itself. In the case of Rostow's five stage model, the stages have been grouped according to their position in his earlier three-stage presentation.

30Ibid., pp. 105-106.
In looking down the summary column of the various ways in which each author characterizes each stage or its leader, it is amazing how consistent each stage is. Even though the growth stages describe entirely different institutions and even though they cover vastly different periods of time, the characteristics are quite similar. Such similarity should suggest that growth in any institution is largely a function of internal processes, or, as Penrose has described it, the ability of the internal resources to meet available opportunities for growth.

After reviewing much of the important literature on the subject of growth, there are certain conclusions which may be reached:

1. The most satisfactory approach to the analytical study of growth is to present stages of growth and to describe the changes which take place as each stage is achieved.

2. There is a remarkable similarity in the patterns of growth of various economic, religious, and political institutions despite the vast differences between them in the length of the growth cycle and the number of participants.

3. There are certain well-defined factors that are necessary for the growth of an institution. Chief among these are leadership, participants, and personal or
organizational goals. By cooperating in the achievement of the goals of the organization, the participants in the system are able to meet their own objectives as well.

4. Each institution has its own growth cycle, that is apparently unaffected by the stage of growth of associate or subordinate institutions. For example, while the labor movement as a whole is in a period of stabilization, some unions are in a period of exploitation. Or, while an industry is in a period of exploitation, it is quite feasible for individual firms to be in first stage period of traditional small business operations.

5. There is a need for further attention by management people to the problem of growth in the single firm. Few major studies have been conducted, and these were generally performed by economists and devoted to economic rather than managerial problems.
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The Purpose of the Chapter

The purpose of this chapter is to present an integrated and logically consistent pattern of growth for a firm with a single product base. As noted earlier, the purpose in using firms with a single product base is to allow the use of measures such as total sales, assets, and employment as measures of growth within that base. A firm with several product bases, on the other hand, might well find itself with different bases in different stages of growth, thus compounding the difficulty already present of allocating costs or employment to particular product segments. Three stages of growth are indicated, with special attention to the points between each when the growth rate increases or declines. As each stage is discussed, attention is focused upon basic management factors, so that the change in each factor is noted as the business moves into a new stage of growth.

Like the analytical models presented in the previous chapter for industry, national, or other kinds of institutional growth, the growth model for the firm is an
abstraction. That is, it presents an ideal pattern of growth in a firm led by ideal types of leaders. However, "while a theoretical model must be clear-cut to serve as a useful tool for the analysis of reality, reality itself never is precise."¹ It is important, therefore, to examine the extent to which the hypotheses in the model describe the real world if the applicability of the model is to be determined.

The chapters which follow examine the most important basic business factors as they pass through the stages of growth. The analytical basis for the evolution of the factors is discussed in greater detail in these chapters and the major premises are compared with the empirical experience of the firms in the longitudinal study. Other evidence is also considered.

Particular attention should be directed to the definition of the kinds of leadership in each stage, since the terminology used varies from author to author. Unless carefully defined, one might associate the types of leaders used here with various other definitions in the literature/

Stage I -- "Small Business" Stage

The first stage of growth may be classified as the "small business" stage. "Small business" is used here to describe the method of operation rather than the relative sales volume or number of employees. It probably includes a majority of the small retail, service, and jobbing establishments in the United States, as well as other types of enterprise in their first few years of existence.

The firm in the small business stage has one or two owner-managers with a few employees reporting to the owner or owners. The relationship between the owner and his subordinates is direct and personal, with no evidence of a formal organization. What exists is a simple line relationship in the first stage of line devolution. The group resembles a large family organization with each person acting in a traditional assigned role. There is closeness and frank communication between the members of the business "family" but an unwillingness to disclose business information to outsiders.

The typical small business has no idea of progress. Success is measured by comparing the present with the past. If the firm made more profit or had greater sales this year than last, then the operations are felt to be successful. The owner-manager is largely unaware of business methods used by other similar enterprises, unless provided
with these methods by his trade association, wholesaler, or supplier. His attitude is one of long-run fatalism, feeling that things won't be much better in the future than they are now. Often he blames his lack of progress on some special group. For example, interviews with small businessmen who showed no apparent evidence of growth yielded the following statements about farmers ('they get rich for doing nothing'), unions ('you can't make a profit when the unions eat it up with wage demands'), and the government ('they spend their time catering to big business because it finances their campaigns').

A free market economy provides anyone the opportunity to risk his capital in a legal venture. One would normally expect that the small, inefficient non-growth firm would be driven from the market by its larger counterpart. There are apparently three main conditions under which the small non-growth firm may exist in the market: (a) the existence may be temporary; (b) the existence may be protected; (c) the firm may have a competitive "niche" in the marketplace. In the first place, the firm may be unable to survive and may simply exist temporarily until its eventual failure. For example, 60 per cent of all service establishments, typically small business, fail within two-and-a-half years of business; 64 per cent of all
retail establishments fail in the same period. Secondly, the firm may be permitted to exist by larger members of the industry through protection of umbrella-pricing or some other means. Such practices are sometimes stimulated by fear of the larger firms that reduced prices and number of suppliers would stimulate government antitrust action. Finally, the firm may have found a competitive "niche." Examples of this situation are a neighborhood grocery with a monopoly on a small neighborhood area, or a carpentry shop that specializes in heat-laminating Formica counter tops, or a plumber who specializes in installing gas-burning lawn lamps. Such firms may be able to give faster, more specialized, or more convenient service desired by the consumer, even at a higher cost.

The competitive advantage may be explained further. The small firm is able to specialize in a minor service, doing a job well that might not otherwise be done. Its overhead costs are low because of size and because it does not have to share the overhead burden as it might if part of a larger organization. This is the case, for example, in a company which specializes in packing bulky items for shipment. The small firm is often exempt from wage or tax

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provisions that would fall on a larger counterpart, and is less in the public eye.

Whether or not the firm desires to grow, it cannot grow until it overcomes certain traditional characteristics of the small business. These have to do with its management and organization. Traditionally, the small firm has no organization objectives that are apart from the objectives of the owner-manager. These are to "make a living" for its owner and to continue in business. Policies, too, depend upon the day to day whims of the chief executive and upon lessons that he had learned from his experience. Like policies, plans change from day to day with no long run goal to give them meaning and direction. Policies and plans are not put in writing.

The few written records of the small business are largely financial. As one small business manager said, "The only reason that we keep records is because the government makes us do it for tax purposes." Yet the owner-manager has difficulty explaining what portion of his income was an imputed return on his investment, what portion was rent on his property, and what portion was wages paid to himself. If he were to do this, he might find that his income was below what could be earned if he invested his funds and worked for someone else. In any
case, he need cope with no great risk or uncertainty, hence demands no great reward.

The leadership of the owner-manager is likely to be a routine, trial and error type. He tends to be an independent sort of person who enjoys having his own firm and being "on his own." He does not want to be told how to do his job. When asked if he would like to attend lectures on small business problems, he is likely to say that he is too busy, or that his is the kind of business that one has to "learn by experience." The owner-manager's main talent is likely to be on some functional area like selling, manufacturing, or purchasing. There is little evidence of the performance of management functions of planning, organizing, and controlling.

The employees of the small firm look upon their jobs as rather routine. They may know and respect the owner-manager, but he does not instill any crusading desire in them to work hard and build the firm. They simply work their required job and meet the day to day problems that come along. Whenever there is more work to be done than can be handled by the present employees, the owner will add new people. He will not have any particular job or worker specifications in mind for employment guides; rather, he will hire just because he is too busy. One would expect to find, under these conditions, that the
proportion of sales per employee would not change significantly, so long as the nature of the business did not change. Both the empirical evidence from the longitudinal studies to be considered in the following chapters and the earlier interview experience by the writer in a Small Business Administration study point to the fact that the non-growth traditional firm tends to rely upon autonomous changes as determining "good" or "bad" business.

The organization structure of the small firm is defined informally or by custom. The jobs at the top are filled by the owner and his family and any supervisory positions that exist are likely to be filled by long-time lieutenants who have the title of supervisor but little authority. In a typical small firm all employees will report to the owner. With large firms in this stage, there may be levels of supervision, though supervisors are chosen more for personal than for rational business reasons. Such staff functions as are performed will usually be done as a part of a line employee's job. The only staff differentiation that will commonly appear will be in a secretary or part-time auditor.

Morale is not likely to be a problem since employees will not expect anything better and will simply perform within their traditional roles. Employees know what is happening in the business and work closely with the owner,
so that communication is good in all directions. Similarly, the lack of a hierarchy and the absence of close supervision by the owner will avoid serious morale problems.

Unless conditions change considerably, the small firm may continue to operate in the fashion just described until it dies through insolvency, sale, or termination by the owner's death or withdrawal. It may even grow through fortuitous external circumstances or minor internal changes by the owner, but it will not enter what could be called a "take-off."

**Disequilibrium and Take-Off**

For the firm to leave its traditional "small business" stage of growth it will have to establish certain basic conditions. These conditions introduce a disequilibrium into the otherwise equilibriated business. Where before the organization was a closely knit family of interests, now there will be strong personalities with diversified interests. Where before the rate of saving and investment roughly paralleled the rate of output, now the income and output will rise at a faster rate than an also increased rate of investment and saving. Where before it was felt that the business would continue in much the same way until its demise, now it is clear that revolutionary changes can be made to take place.
The basic preconditions that are necessary if the take-off is to take place appear to be the following:

1. An innovation
2. An entrepreneur
3. Capital
4. Risk and uncertainty
5. Reward for assuming uncertainty
6. The desire to change
7. Supporting economic services
8. Proper environment

1. An innovation. If rapid growth is to take place, there must be an innovation which can be exploited. This innovation may take the form of a new good, a new method of production, a new market, a new source of supply of raw materials, or a new market position. A new method, for example, may be one which enables the production of a higher quality of goods at the same cost, or the same quality at a lower cost, or the same quality at the same cost but in greater quantity in the same or less time.

An innovation may be a kind of invention, but it might also be the recognition of a heretofore unexploited market opportunity. This distinction between invention and innovation is stressed because the person who invents is not necessarily the same person who exploits or promotes the innovation. History is full of examples of promoters

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3. These are patterned after Schumpeter's classification of innovations and will be explained more fully in Chapter VIII. Joseph Schumpeter, The Theory of Economic Development (Cambridge: Harvard University Press, 1934), p. 66.
(entrepreneurs) who took inventions that had been ignored and exploited their real potential.

2. An entrepreneur. An entrepreneur is a dynamic, self-seeking, promoter type of person who thrives on activity, risk, competition, profit, and power. He may exploit an idea developed by an innovator, or he may simply recognize the opportunity in a new market or process. Examples of the latter would be the promotion and development of a market arising from population changes or resource discovery.

It is unlikely that the owner-manager of the first stage will be of the entrepreneurial type, so that an entrepreneur will have to be introduced into the organization if the take-off is to be realized. In some cases the organization is begun by the entrepreneur at the beginning of the second stage of growth, so that the first stage will not take place at all.

3. Capital. The take-off cannot be financed from the retained earnings of the first stage of growth, although such earnings are an important source of funds once the growth is begun. The rate of net investment must increase to pay the cost of increased fixed and working capital needs. For this reason, the savers in the economy must be willing to provide money for investment. Equity capital or bank credit must be made available. It is expected that if
the funds are available, they will be drawn easily to this form investment because of the high marginal efficiency of capital arising from the unique profit opportunity. Profits will be high because costs will lag behind prices. The factors of production that are required will be priced at a rate corresponding to the price of those in the rest of the economy.

4. **Risk and uncertainty.** Rapid growth cannot take place without the existence of risk or uncertainty. When uncertainty does not exist, there can be no great reward. And, in the absence of excessive profit reward, the entrepreneur does not appear. When risk and uncertainty are removed, rapid growth is absent.

5. **Reward for assuming uncertainty.** There must be a sufficient profit opportunity in the exploitation of an innovation to reward the entrepreneur for the assumption of the uncertainty involved. Where the reward for assuming uncertainty does not exist, then no entrepreneur will be interested in accepting it. Both the provision of capital and the reward for the assumption of uncertainty therefore indicate the need for some degree of unequal distribution of income. Without the risk or uncertainty or the opportunity for riches, there can be no investment capital nor reward for great deeds.
6. **The desire to change.** Obviously if a take-off is to occur, the people involved in its accomplishment must believe that change is possible and desirable. This is no mean feat if the employees of the firm have been imbued with the long-run fatalism that is characteristic of the first stage of growth. Generally, the idea of and desire for change are instilled in the employees by the entrepreneur. They identify with him and believe that he will benefit them. They foresee business growth, better job opportunities, and greater reward for themselves.

7. **Supporting economic services.** The term "social overhead capital" has been used in studies of economic development to refer to basic social requirements that serve many businesses, not just one. Such would be transportation systems, power sources, communication media, schools, hospitals, roads. Just as these become the underpinning of economic development as a whole, so they and other more specific conditions also become important to the single firm. For example, the opening of a seaway may provide access to new supplies of raw materials. Or, the exploitation of a new household device may require the advertising media to reach the consumer and the transportation facilities to get the device to the buyer.

8. **Proper environment.** Finally, there must be an environment in which the economic, political, and social
conditions are favorable to growth. For example, the government can suppress certain forms of business ownership and operation. It can, within limits, control the flow of funds into certain sectors of the economy. The philosophy of the country will affect the willingness of its population to change and advance. A related situation is industry control by a few firms. If the take-off is to occur in an already existing industry, the degree of market control by competitors may affect the realization of the new growth. All of these conditions have some effect on the ability to achieve a take-off.

If all of these factors can properly jell, the firm will increase its rate of growth, entering the second stage of growth. 4

Stage II -- Dynamic Stage

The second stage of growth may be called the dynamic stage. It is a period of rapid, sustained growth of assets, sales, and number of employees. The pessimism of the first stage gives way to a prevailing philosophy of optimism.

4The preconditions stated above may be compared with those necessary for national growth: In Britain, Canada, and the United States "the proximate stimulus for take-off was mainly (but not wholly) technological. In the more general case, the take-off awaited not only the build-up of social overhead capital and a surge of technological development in industry and agriculture, but also the emergence to political power of a group prepared to regard the modernization of the economy as serious,
engendered largely through the leadership of the entrepreneur. The group is heterogeneous, with employees of widely differing personality, training, and goals. All work together for business success.

The objective-setting pattern in the second stage is much different from that of the first. Instead of viewing success in terms of comparison with the past, the entrepreneur of the second stage will set optimistic goals for future growth or profit and then measure business success against progress toward these goals. The goals are still personal, however, measured in terms of "his" profit from "his" business. He generally wants his employees to share in the expected rewards also, since he feels that they are his "friends" and would like to see them benefited.

The firm pursues these objectives by exploiting the sales opportunities for its products. It often values immediate sales above a longer run development of the market. An example of this would be the willingness to offer costly services or cut prices to get sales. In its haste to gather the fruits of its innovation there is little time for the subtleties of planning, control, or

high-order political business. . . . New types of enterprising men come forward -- in the private economy, in government, or both -- willing to mobilize savings and to take risks in pursuit of profit or modernization." W. W. Rostow, The Stages of Economic Growth, p. 8 and p. 6.
the development of weaker functions. Policies are changed according to the whims of the entrepreneur. Written policies and procedures are absent. Few records are kept.

As the organization grows, the entrepreneur adds able lieutenants in various functional areas, coordinating the actions of their specialized functions. As one man put it, "After things got rolling, I just sat in the middle and pulled the strings." The emphasis by the entrepreneur on bringing strong specialists into the firm pays off eventually, as the firm gains a reputation in the industry for superior knowledge and service.

The rate of investment, increased at the take-off, is expected to continue at the higher rate. Profit margins on sales are high during the dynamic stage since factor prices are at the market while the innovation yields a higher price from the high degree of product differentiation. This margin will reach a peak sometime in the middle of the stage; then it will decline as other firms introduce close substitutes and force a lower price through competition. At such time the firm may resort to further product differentiation. Since sales will increase more rapidly than investment during this stage, the sales to asset ratio will increase. The high profits will be reinvested in the firm to finance further growth. Growth is costly in terms of its drain on working capital, so that even though the
firm is constantly increasing its income, it will experience a shortage of working capital.

The entrepreneur is willing to subject himself to the risk and uncertainty of dynamic growth largely because he is unaware of what he is facing. Since he minimizes the difficulties that lie ahead, and enters the situation with optimism. He expects to become a "millionaire" in a few years and cheerfully hopes to similarly reward those loyal followers who aid him in his efforts. This stereotype of the entrepreneur frequently builds financial empires with a sort of "hip pocket" operation; records are written on the back of matchbook covers and stuffed in a pocket; the business may be run from a small, cluttered corner of a rented building.

The entrepreneur is quite unlike his predecessor, the owner-manager, in that he has no illusions about his "born right" of leadership or his intellectual superiority. He respects the ability of his technicians and generally rejects the adage that "experience is the best teacher." His employees are motivated to follow the leadership of this entrepreneur for many reasons. Some are poor and hope to raise their income; some are dissatisfied with themselves and choose to identify with the stronger personality; others are ambitious and recognize the opportunity provided by the situation. All tend to identify
with the head man, however, rather than with the organization itself, and all bear the stamp of his personality. Even though there will be many strong, independent individuals in the organization, and even though conditions will be changing rapidly, morale will be high.

The total number of employees in the company will increase as sales and assets increase, though not as fast. Since the rate of output will surpass the rate of increased employment, one may expect to find an increasing ratio of sales per employee during this stage.

The nature of the innovation being exploited or the nature of the particular talent of the entrepreneur are such that the growth of the firm in the second stage is largely within one function. Quite often this function is sales. In some cases where a device is protected by patent, yet under strong demand, then the function may be production. As the stage progresses, the product base will broaden with other products added to the line, utilizing the technology developed initially in the product base. Also, as the stage progresses, the strength of other functions will be increased, so that by the time the firm reaches maturity, it will be strong in all of its major functions.

The organization structure of the second stage of growth is characteristically a flat one. This flat
structure contains few levels and wide spans of control. Since the leadership talents of the entrepreneur are of a person-to-person rather than an executive type, the levels must not be so many that it is difficult for the entrepreneur to make contact with every member of the organization. Even though the organization chart shows three or four levels, it is expected that any of the employees have easy access to the entrepreneur. The constantly widening span of the entrepreneur places such a demand on his time that he will extend his capacity by using general staff assistants. These staff assistants serve as extensions of his personality, acting in his name. The use of more specialized technical and coordinative staff will be held until the firm develops a rational organization structure.

The strong-willed entrepreneur will delegate responsibility to subordinates as the organization grows and develops. He tends to retain authority, however, until the firm begins to develop sound general administrative management. In sum, the growth in the second stage is largely the result of innovation and an entrepreneur, both of which contribute to the stage of disequilibrium and rapid progress.

Equilibrium and Maturity

The point of maturity is much less easily defined than the point of "take-off." It is not the unique jelling of
certain components, as was the take-off. Instead, it is the establishment of a new kind of equilibrium. This equilibrium may be established in several ways. It may occur in steps during the end of the second stage of growth, especially if the entrepreneur is also imbued with management talents. The equilibrium may be established rather suddenly at the end of the second stage. Or, it may be established during several crises after rapid growth is completed.

Nevertheless, there are several characteristics of maturity that help one to determine when it has been reached:

1. Stable rate of investment
2. Stable employment
3. Stable sales
4. Full functional development in a rational organization structure
5. Effective administrative and operative management
   a) planning
   b) organizing
   c) controlling

1. Stable rate of investment. The rate of net investment is expected to decline to a minimum at the point of maturity, although gross investment may be high just to replace worn-out equipment. Productivity may increase somewhat from this new equipment, when it is more efficient than that which it is replacing.
2. **Stable employment.** Total employment will also stabilize at the point of maturity. After reaching that point, both line and staff employment will remain in the same proportions of total employment.

3. **Stable sales.** The rate of sales will level off at the point of maturity. Should the firm desire to increase sales further, it will have to do so by increasing its investment, and since sales will increase at only the same rate as investment, to do so will not normally be productive.

4. **Full functional development in a rational organization structure.** By the time that the firm reaches maturity it will have developed strength in all of its major business functions. It will be able to effectively create, distribute, and finance all of the products in its product base. Major staff functions like personnel and purchasing should also be performed well. A rational structure will provide the necessary support for successful maturity and future growth.

5. **Effective administrative and operative management.** The mature firm will have instituted the necessary requirements for sound administrative and operative management. First, it will have executive leadership at the top levels capable of planning, organizing, and controlling the operation of the entire business or of major parts. Second, it
will have at its middle and lower levels the necessary operative management to plan, organize, and control the operations of various lesser functions and organization units. Third, both of these groups of managers will utilize a sound company philosophy, including certain basic objectives, planned policies and procedures, a decentralized organization, and required controls. In short, the principles of sound management as they are known today will be applied.

Stage III -- The Stage of Maturity

By the time that it enters the third stage of growth, the firm has become a large, complex organization. The dynamic period of growth which preceded it will be replaced by a period of stability, during which time the organization becomes institutionalized. The entrepreneur exercising face to face leadership will have been replaced by executive leaders who perform the management process of planning, organizing, and controlling. Attitudes will have become more conservative. Action will be undertaken only after rational consideration of its consequences.

In order to operate profitably in the third stage of growth, the firm must function as a well-constructed machine. It cannot overcome the inefficiencies of growth
with rapidly increasing sales. With sales stabilized, it must reap the profits of its growth efforts by reducing costs and introducing economies of operation. These savings are the result of attention to its organization and management.

In a few cases one finds a firm which was begun at the third stage of growth. One of the best examples is the U.S. Steel Corporation, which was formed in 1901 through the consolidation of eight major steel companies. Presumably, each of the eight companies would have gone through at least one of the first three stages of growth before this move. The combined firm grew much more slowly than its competitors and was noted for its full publicity of affairs and its fair dealing with smaller competitors.

As the firm becomes institutionalized, it develops an organizational philosophy of management. As an important part of this philosophy it sets out certain organizational objectives, as opposed to the personal objectives of those connected with it. As a firm it wants to provide the customer with sufficient value so that the public will allow it to grow and continue profitable operations. The provision of this salable value enables the persons participating in the firm to gain their own wages, dividends, salaries, or other rewards.
The mature firm will have written policies to guide the activities of various parts of the enterprise toward its objectives. The responsibility for the policy-making function will lie with the chief executive or with a group like the Board of Directors or executive committee. Policy-making is much more likely to be a group process in the third stage for the organization will have become so complex that it is difficult for one man to consider all its aspects.

The third stage is marked by the addition of specialized staff personnel who aid line management in planning, and control. Matters like production control, cost control, budgeting, or replacement analysis are seldom considered in depth when a company is devoting its efforts to meeting the demand for its products, but they are extremely important once the firm has exploited its market opportunity and must rely on efficiency and economy for increased profit. It is also characteristic of the third stage that all planning be done with greater futurity. The firm has to map its major strategy for future operations.

Having reached maturity the marginal efficiency of capital will be reduced unless the firm can add additional growth sectors or unless its market position is secure enough to warrant satisfactory margins. Its capital needs
will have been reduced, particularly for working capital. The sales to assets ratio should be stable on the average.

By the time the third stage is reached the dynamic, obsessive entrepreneur either becomes or is replaced by a more deliberate professional manager. To the entrepreneur the firm was an organism to be kept alive and exploited, to the manager it becomes a well-planned and ordered mechanism to be kept in working order. The professional manager is not likely to be a major owner in the company; instead, he runs the company for the benefit of the stockholder and other interested groups. Management is a group process in this stage. Management groups provide the necessary conservative and thorough consideration of important matters. They provide an important tool for communication at a time when face-to-face leadership is insufficient. Without them it would be difficult to keep the various parts of the firm moving in the same direction.

By the time the organization reaches maturity, clear-cut descriptions of responsibility and authority will have been developed and employees will have been hired to meet these definite employment standards. One expects to find

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5This is similar to a statement made by the following authors although they use different definitions for entrepreneur and manager, failing to see their true significance in growth stages. Alfred D. Chandler, Jr. and Fritz Redlich, "Recent Developments in American Business Administration and Their Conceptualization," Business History Review, Vol. XXXV, No. 1 (Spring, 1961), p. 4.
that employees are more skilled, technical, or professional than was true in the earlier stages. Although they fit into more definite job categories, the employees are more alike as a group; that is, they are better indoctrinated with a single philosophy and are held together by this kinship.

Employees in this stage identify with the company and the job rather than with the entrepreneur. They tend to view their jobs as contractual relationships in which they cooperate in an economic system in order to reach their own objectives. Thus morale in this stage is maintained by the similarity of interests rather than by the dynamic stress of the second stage. Once maturity has been reached line and staff ratios remain the same and sales per employee are fairly stable. The scale of operations may vary somewhat but the proportions will remain fixed.

The organization structure of the third stage tends to be longer than it was in the second. Responsibility and authority are delegated, spans of control are reduced, and new levels of middle management are created. Then top management truly has the time to reflect upon the future, setting objectives and establishing basic policy. Middle management levels take over the job of coordinating the complex of functions, and supervisory management handles
day to day affairs. The company must decentralize in this manner if it is to handle the new problems of maturity.

It is interesting to note that the process of organization and the introduction of sound management systems all serve to eliminate risk and to reduce uncertainty -- the factors upon which the reward of the entrepreneur was based. Instead, the organization becomes better informed and less inclined to gamble on the future.

But what is the future of such an organization? Once it has achieved maturity and benefited by its efficiency, then several courses of action are open to the mature firm:

1. First, it may grow old gracefully, probably becoming something very close to the traditional "small business" type of firm. With designs and processes fixed and regularly declining demand for its products, the firm can operate with a minimum of staff or middle management until its eventual demise.

2. Second, the old product base may be purposefully liquidated over a period of time, and a new product base introduced to take its place. So long as the old base is able to break even it may be operated so that it can carry part of the overhead and continue to operate on depreciated equipment.
3. The old product base may continue to grow though not at its earlier rapid rate. The firm may continue to rely on internal growth through the addition of product improvements, the introduction of cost-saving machines or practices, or the extension of its market.

4. The firm may elect to expand the old product base as previously explained, and also add new product bases. Thus it may have different parts of the firm in different stages of growth.

5. The firm may choose to grow externally through acquisition or merger with other companies. This growth often permits economies of scale or creates a more preferred market position so that additional profits may be made.

6. The owners of the firm may sell it to another company, freeing the funds for new investment. Where the company is still in the hands of an entrepreneur, he may then embark upon another type of exploitation.

7. It will be recognized that there are many other combinations as well. The ones mentioned would appear to be the most common, however.

In sum, the three stages of an analytical growth model have been presented. Naturally, they contain so many hypotheses that it would take many volumes to explore them all and many research studies to test them empirically.
In the chapters which follow, the major hypotheses in the model will be subjected to empirical analysis by comparing them with the growth history of the five companies included in this study. The hypotheses will also be explored from the standpoint of other research and authoritative opinion.

Stages of Growth in Companies in the Present Study

Table 2 shows the dates and length of the growth stages in the companies presently under longitudinal study as they correspond to the stages in the growth model. As is shown, three of the firms were only briefly in the first stage, having been organized by entrepreneurs to exploit some particular innovation. Three of the firms have not experienced the third stage, though there are definite signs that all are moving toward maturity.

This chapter completes the basic groundwork necessary for the analysis which follows. The scope and method has been explained, the background of the companies studied empirically has been summarized, the existing research on growth was reviewed, and, finally, the growth model itself was set out. In the chapters which follow, certain important factors will be analyzed as they develop during the stages of growth.
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CHAPTER V
OBJECTIVES AND POLICIES

The Pattern of Growth

From what has been said in the earlier chapters it is obvious that there is a similar configuration of growth for many different types of institutions. More specifically, it is possible to prove that a nation, an industry, and an individual firm follow the same pattern of growth. When measure of growth for one of these is plotted in an arithmetic scale the pattern is that of a flattened S, assuming that all three stages of growth take place. When the same measure of growth is plotted on a ratio (semi-logarithmic) scale the pattern often becomes $\rightarrow$ with the first stage showing a high ratio of growth simply because of its beginning from a small base.

In order to illustrate the similar configurations in national, industry, and firm growth, one may consider a sample history of each. First, to illustrate total economic growth the United States development may be divided into the three stages of the growth model. According to Rostow's analytical study the first stage occurred prior to about 1840, when the preconditions for growth were being
developed. The second stage of growth took place between about 1840 and 1900, during which time this country experienced a take-off, and after which it began to develop maturity.¹

The changing rate of economic growth in the United States may also be seen in an empirical analysis of national product by Simon Kuznets, using growth data assembled from several sources.² This data has been extended to 1958 by the present writer, using additional information and an estimate of the price index computed by splicing the 1947 Federal Reserve Board index to the 1929 base. The growth of population and national product is presented in Table 3. The same data is analyzed in percentage figures in Table 4.

The tables show the early rise in both total and per capita product after the take-off in this country and the slowing in the rate of growth after the turn of the century. They also show an unusual increase in product figures in the last two or three decades which may indicate a new take-off introduced by the atomic age, or may simply be a temporary recovery from the unusual periods of war and depression.

¹The Stages of Economic Growth, pp. 4-11. At some points Rostow calls the period following 1900 "maturity"; at other times he describes it as "the drive to maturity." The difference is important.

## TABLE 3

POPULATION AND GROSS AND NET NATIONAL PRODUCT, TOTAL AND PER CAPITA, CURRENT AND 1929 PRICES, UNITED STATES, 1869-1958

<table>
<thead>
<tr>
<th>Decades</th>
<th>Population (millions)</th>
<th>Net Nat. Product Current Prices (1929=100)</th>
<th>Gross Nat. Product 1929 Prices (billions)</th>
<th>NNP Per Capita 1929 Prices (dollars)</th>
<th>GNP Inc. Govt. Services Per Capita 1929 Prices (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1869-78</td>
<td>44.6</td>
<td>6.56</td>
<td>69.1</td>
<td>9.49</td>
<td>10.73</td>
</tr>
<tr>
<td>1.1874-83</td>
<td>49.8</td>
<td>8.36</td>
<td>60.9</td>
<td>13.72</td>
<td>15.12</td>
</tr>
<tr>
<td>1.1879-88</td>
<td>55.6</td>
<td>9.88</td>
<td>55.6</td>
<td>17.77</td>
<td>19.70</td>
</tr>
<tr>
<td>1.1884-93</td>
<td>62.1</td>
<td>10.84</td>
<td>52.0</td>
<td>20.83</td>
<td>23.42</td>
</tr>
<tr>
<td>1.1889-98</td>
<td>68.4</td>
<td>11.59</td>
<td>48.4</td>
<td>23.96</td>
<td>27.25</td>
</tr>
<tr>
<td>2.1894-1903</td>
<td>74.7</td>
<td>14.50</td>
<td>48.3</td>
<td>30.02</td>
<td>33.97</td>
</tr>
<tr>
<td>2.1899-1908</td>
<td>81.8</td>
<td>19.92</td>
<td>52.9</td>
<td>37.64</td>
<td>42.41</td>
</tr>
<tr>
<td>3.1904-13</td>
<td>90.2</td>
<td>26.25</td>
<td>58.3</td>
<td>45.02</td>
<td>50.84</td>
</tr>
<tr>
<td>9.1909-18</td>
<td>98.6</td>
<td>35.74</td>
<td>71.2</td>
<td>50.22</td>
<td>57.24</td>
</tr>
<tr>
<td>10.1914-23</td>
<td>105.9</td>
<td>54.29</td>
<td>95.6</td>
<td>56.78</td>
<td>65.19</td>
</tr>
<tr>
<td>11.1919-28</td>
<td>113.5</td>
<td>72.16</td>
<td>104.2</td>
<td>69.28</td>
<td>79.03</td>
</tr>
<tr>
<td>12.1924-33</td>
<td>121.2</td>
<td>70.14</td>
<td>95.6</td>
<td>73.39</td>
<td>83.91</td>
</tr>
<tr>
<td>13.1929-38</td>
<td>126.7</td>
<td>61.27</td>
<td>85.4</td>
<td>71.72</td>
<td>82.46</td>
</tr>
<tr>
<td>14.1934-43</td>
<td>131.7</td>
<td>76.32</td>
<td>88.8</td>
<td>85.90</td>
<td>98.06</td>
</tr>
<tr>
<td>15.1939-48</td>
<td>138.5</td>
<td>121.46</td>
<td>114.6</td>
<td>105.95</td>
<td>123.53</td>
</tr>
<tr>
<td>16.1944-53</td>
<td>148.9</td>
<td>185.90</td>
<td>147.6</td>
<td>125.94</td>
<td>150.17</td>
</tr>
<tr>
<td>17.1949-1958</td>
<td>161.3</td>
<td>335.45</td>
<td>170.6</td>
<td>196.60</td>
<td>213.77</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per Cent Change Per Decade</td>
<td>7 Item Moving Average of Col. 1</td>
<td>Per Cent Change Per Decade</td>
<td>7 Item Moving Average of Col. 3</td>
<td>Per Cent Change Per Decade</td>
<td>7 Item Moving Average of Col. 5</td>
</tr>
<tr>
<td>1869-78 to 1879-88</td>
<td>24.7</td>
<td></td>
<td>87.2</td>
<td></td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>1879-88 to 1889-98</td>
<td>24.7</td>
<td></td>
<td>51.8</td>
<td></td>
<td>54.9</td>
<td></td>
</tr>
<tr>
<td>1889-98 to 1899-100</td>
<td>23.0</td>
<td>(22.5)</td>
<td>36.8</td>
<td>(35.0)</td>
<td>38.3</td>
<td>(36.4)</td>
</tr>
<tr>
<td>1899-100 to 1909-11</td>
<td>20.3</td>
<td>21.9</td>
<td>46.1</td>
<td>51.2</td>
<td>45.0</td>
<td>52.4</td>
</tr>
<tr>
<td>1909-11 to 1919-12</td>
<td>19.6</td>
<td>20.9</td>
<td>57.1</td>
<td>42.5</td>
<td>55.6</td>
<td>43.8</td>
</tr>
<tr>
<td>1919-12 to 1929-13</td>
<td>20.5</td>
<td>18.3</td>
<td>53.4</td>
<td>39.7</td>
<td>55.0</td>
<td>40.0</td>
</tr>
<tr>
<td>1929-13 to 1939-14</td>
<td>17.4</td>
<td>17.0</td>
<td>26.1</td>
<td>33.9</td>
<td>28.2</td>
<td>34.2</td>
</tr>
<tr>
<td>1939-14 to 1949-15</td>
<td>15.1</td>
<td>15.5</td>
<td>38.0</td>
<td>28.2</td>
<td>38.1</td>
<td>28.7</td>
</tr>
<tr>
<td>1949-15 to 1959-16</td>
<td>14.6</td>
<td>13.9</td>
<td>29.3</td>
<td>27.9</td>
<td>28.7</td>
<td>28.7</td>
</tr>
<tr>
<td>1959-16 to 1969-17</td>
<td>11.6</td>
<td>13.0</td>
<td>3.5</td>
<td>29.6</td>
<td>4.3</td>
<td>30.9</td>
</tr>
<tr>
<td>1969-17 to 1979-18</td>
<td>8.7</td>
<td>12.6</td>
<td>17.0</td>
<td>38.2</td>
<td>16.9</td>
<td>(28.4)</td>
</tr>
<tr>
<td>1979-18 to 1989-19</td>
<td>9.3</td>
<td>(11.8)</td>
<td>47.7</td>
<td>(40)</td>
<td>49.8</td>
<td></td>
</tr>
<tr>
<td>1989-19 to 1999-20</td>
<td>13.1</td>
<td></td>
<td>46.6</td>
<td>52.5</td>
<td>56.3</td>
<td></td>
</tr>
<tr>
<td>1999-20 to 2009-21</td>
<td>16.5</td>
<td></td>
<td>85.6</td>
<td></td>
<td>42.6</td>
<td></td>
</tr>
</tbody>
</table>

Figures in parentheses are arithmetic means of the first and last groups of five items each.

Source: Table 3.
which preceded it. If the latter case is true, then the United States may only now be entering its stage of maturity. In any case the S-shaped growth for total economic growth is clear, though less pronounced than has been recorded in other countries. The rather more constant rate of growth is explained by the fact that the resource base in this country has been large relative to the rather small population.

These data do suggest that Rostow may have been too quick in his judgment of maturity for this country. It would seem more likely that the country is in the latter part of its growth stage, and that the stage of maturity has yet to be achieved. If this be true, then the problems of total economic management are only just beginning and national goals and planning will become increasingly more important.

To provide an illustration of an industry growth curve, also following the S-shaped model, one may view the plastics industry. While the United States as a whole has been approaching the third stage of growth, the industrial sector represented by the plastics industry has experienced a take-off and period of rapid growth in its own second stage. Figures are not available for the first stage of growth in the plastics industry, but it is fairly certain that it began about 1869 when celluloid, the first cheap
plastic, was produced by John Hyatt. The industry experienced a take-off in the late 1930's, as shown in Table 5. From 1937 to 1959 Gross National Product in current dollars increased 431 per cent, GNP in 1954 dollars increased 121 per cent, and the Federal Reserve Board Index of Industrial Production increased 161 per cent, yet the production of plastics materials increased 3,005 per cent. Clearly, the plastics industry has experienced its own growth curve, outside of the cycle of national economic growth, as may be true in any product field.

Finally, for an illustration of the growth curve at the firm level one may note that the plastics fabricator mentioned in Chapter II entered its own take-off in 1951 and, if present predictions are correct, will reach maturity in its present product base about 1966. It, too, has experienced a growth curve that is separate from, yet similar to, the economic and industry curves. It follows from this reasoning that if all levels follow the same pattern of growth, and if the characteristics of national growth are the same as the characteristics of industry growth, then the characteristics of the growth of a single firm should also be the same.

---


4 See Appendix A.
<table>
<thead>
<tr>
<th>Year</th>
<th>Synthetic Plastics and Resins Production</th>
<th>Value of Sales (per pound)</th>
<th>Estimated Value of Production ($1,000)</th>
<th>Cellulose Plastics Production</th>
<th>Plastics Materials, Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1937</td>
<td>163,031</td>
<td>$0.21</td>
<td>34,237</td>
<td>30,957</td>
<td>193,988</td>
</tr>
<tr>
<td>1938</td>
<td>130,359</td>
<td>.22</td>
<td>28,679</td>
<td>23,712</td>
<td>154,071</td>
</tr>
<tr>
<td>1939</td>
<td>213,028</td>
<td>.23</td>
<td>51,127</td>
<td>34,169</td>
<td>247,197</td>
</tr>
<tr>
<td>1940</td>
<td>276,814</td>
<td>.30</td>
<td>83,044</td>
<td>35,765</td>
<td>312,579</td>
</tr>
<tr>
<td>1941</td>
<td>452,171</td>
<td>.34</td>
<td>153,738</td>
<td>53,434</td>
<td>505,605</td>
</tr>
<tr>
<td>1942</td>
<td>439,999</td>
<td>.40</td>
<td>176,000</td>
<td>63,374</td>
<td>503,373</td>
</tr>
<tr>
<td>1943</td>
<td>653,938</td>
<td>.31</td>
<td>202,721</td>
<td>68,428</td>
<td>722,366</td>
</tr>
<tr>
<td>1944</td>
<td>782,352</td>
<td>.30</td>
<td>234,706</td>
<td>80,976</td>
<td>863,328</td>
</tr>
<tr>
<td>1945</td>
<td>818,020</td>
<td>.35</td>
<td>286,307</td>
<td>90,644</td>
<td>908,664</td>
</tr>
<tr>
<td>1946</td>
<td>1,025,118</td>
<td>.35</td>
<td>358,791</td>
<td>133,413</td>
<td>1,158,531</td>
</tr>
<tr>
<td>1947</td>
<td>1,251,699</td>
<td>.38</td>
<td>475,646</td>
<td>95,332</td>
<td>1,347,031</td>
</tr>
<tr>
<td>1948</td>
<td>1,485,668</td>
<td>.30</td>
<td>445,700</td>
<td>85,569</td>
<td>1,571,237</td>
</tr>
<tr>
<td>1949</td>
<td>1,491,111</td>
<td>.30</td>
<td>447,333</td>
<td>90,637</td>
<td>1,581,748</td>
</tr>
<tr>
<td>1950</td>
<td>2,150,518</td>
<td>.30</td>
<td>645,155</td>
<td>129,623</td>
<td>2,280,141</td>
</tr>
<tr>
<td>1951</td>
<td>2,141,432</td>
<td>.35</td>
<td>845,501</td>
<td>116,979</td>
<td>2,558,411</td>
</tr>
<tr>
<td>1952</td>
<td>2,333,192</td>
<td>.36</td>
<td>839,949</td>
<td>98,147</td>
<td>2,431,339</td>
</tr>
<tr>
<td>1953</td>
<td>2,776,627</td>
<td>.35</td>
<td>971,819</td>
<td>128,963</td>
<td>2,905,590</td>
</tr>
<tr>
<td>1954</td>
<td>2,827,803</td>
<td>.34</td>
<td>961,453</td>
<td>123,224</td>
<td>2,951,027</td>
</tr>
<tr>
<td>1955</td>
<td>3,738,916</td>
<td>.33</td>
<td>1,233,842</td>
<td>144,756</td>
<td>3,883,672</td>
</tr>
</tbody>
</table>
TABLE 5 (Contd.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Production</th>
<th>Value of Sales (per pound)</th>
<th>Estimated Value of Production ($1,000)c</th>
<th>Cellulose Plastics Productiond</th>
<th>Plastics Materials, Total Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1956</td>
<td>3,977,469</td>
<td>$0.33</td>
<td>1,312,565</td>
<td>146,972</td>
<td>4,124,441</td>
</tr>
<tr>
<td>1957</td>
<td>4,340,408</td>
<td>.33</td>
<td>1,432,335</td>
<td>148,112</td>
<td>4,488,520</td>
</tr>
<tr>
<td>1958</td>
<td>4,517,628</td>
<td>.31</td>
<td>1,400,465</td>
<td>141,359</td>
<td>4,658,987</td>
</tr>
<tr>
<td>1959</td>
<td>5,864,887</td>
<td>.32</td>
<td>1,876,764</td>
<td>158,088</td>
<td>6,022,975</td>
</tr>
<tr>
<td>1960e</td>
<td>6,052,000</td>
<td>...</td>
<td>...</td>
<td>148,000</td>
<td>6,200,000</td>
</tr>
</tbody>
</table>


bYears 1937-47 on net resin basis; years 1948-60 on dry basis.

cCalculated from production and value of sales per pound.


eEstimated.

One would expect, for example, that the economic development of the country would emphasize a single function at its take-off, and develop competence in all functions by the time it reached maturity. One would then expect the problems of administering this complex system to become critical, once the initial rapid growth is passed and the move to maturity is begun. Indeed, this seems to have been the case, for during the period from the Civil War to the turn of the century there was a

... noticeable tendency within firms for different functional areas to be special problems, in order of time, and for successive executive officers to represent these areas. The characteristic and natural progression, which shows the order in which difficulties arose, was from production to marketing, to finance, and finally to general administration [underlining mine].

Similarly individual firms develop functionally, but must apply basic principles of management in order to operate effectively by the time they reach maturity.

The Growth of Objectives

From what has been said previously it might be expected that each of the basic factors of sound management would go through an evolution during each successive stage of business growth. This chapter will be concerned with the

evolution of two related factors, business objectives and policy.

1. **Stage I -- The survival objective.** In terms of numbers of employees, the United States has always been a nation of small businesses. Of the 4,067,300 firms in the United States in 1951, 74.7 per cent had three or less employees, 95 per cent had nineteen or less, and 99.8 per cent had less than 500 employees. Since the mortality rate in all firms is high, it is reasonable to assume that most of these small firms concentrate upon the problems of continuing their existence. Few are able to develop the strengths necessary to take-off into rapid growth. It may also be true that the survival objective of small business leads to basic weaknesses in planning and organization which are causes of failure.

Most businesses are short-lived. Based on the 1947 to 1954 experience only 26 per cent of all firms survive to five and one-half years of life. More specifically, 54 per cent of the manufacturing firms fail to survive to only two and one-half years of age, and 64 per cent of retail firms fail to last that long. Thus, many firms spend their

---


short existence merely passing through, while others lead a longer but tenuous life.

Tables 6 and 7 show retail employment and sales figures by establishment, and employment and value added by manufacturing establishment as indicated in the 1954 Census. As Table 7 shows, of the 1,614,500 retail establishments operating the entire year in 1954, those with less than six paid employees accounted for 82.9 per cent of the firms, and 35.9 per cent of the sales. The same group of firms were 88.3 per cent unincorporated. The retail firms with less than fifteen paid employees were 94.9 per cent of the total number of establishments and accounted for 57.3 per cent of the business. Further, 97.7 per cent of these firms were unincorporated.

As shown in Table 7, manufacturing establishments tend to have a greater number of employees on the average than do those in retailing. Yet 68.4 per cent of all manufacturing firms in 1954 had less than twenty employees, accounting for 6.1 per cent of the value added by manufacturing. Firms with less than fifty employees accounted for 83.3 per cent of the total number of manufacturing businesses and 13.2 per cent of the value added.

While the foregoing discussion does not delineate stages of growth for retail or manufacturing institutions, it does show the small size and the limited life of a
### TABLE 6

**RETAIL EMPLOYMENT AND SALES BY TYPE OF ESTABLISHMENT, 1954**

<table>
<thead>
<tr>
<th>Employment Size of Establishment</th>
<th>No. of Establishments (Thousands)</th>
<th>Percent of Total Establishments</th>
<th>Cumulative Percent of Total Sales (Millions)</th>
<th>Percent of Total Sales</th>
<th>Cumulative Percent of Unincorporated Businesses (Thousands)</th>
<th>Percent of Total Businesses</th>
<th>Cumulative Percent of Unincorporated Businesses of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total All Estab. Operated Entire Year</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1614.5</td>
<td>100%</td>
<td>162508.4</td>
<td>100%</td>
<td>1552.5</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td><strong>Nov. 15:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. Paid Employees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Paid Employee</td>
<td>659.5</td>
<td>40.8</td>
<td>659.5</td>
<td>9.0</td>
<td>711.7</td>
<td>45.8</td>
<td></td>
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<tr>
<td>2 Paid Employees</td>
<td>203.6</td>
<td>12.6</td>
<td>922.1</td>
<td>16.7</td>
<td>373.6</td>
<td>24.3</td>
<td></td>
</tr>
<tr>
<td>3 Paid Employees</td>
<td>182.2</td>
<td>11.3</td>
<td>954.3</td>
<td>17.5</td>
<td>220.1</td>
<td>14.1</td>
<td></td>
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<tr>
<td>4 or 5 Paid Employees</td>
<td>134.1</td>
<td>8.3</td>
<td>954.3</td>
<td>17.5</td>
<td>220.1</td>
<td>14.1</td>
<td></td>
</tr>
<tr>
<td>6 or 7 Paid Employees</td>
<td>159.2</td>
<td>9.9</td>
<td>1113.5</td>
<td>21.6</td>
<td>325.1</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>8 or 9 Paid Employees</td>
<td>90.1</td>
<td>5.6</td>
<td>1113.5</td>
<td>21.6</td>
<td>325.1</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>10 to 14 Paid Employees</td>
<td>45.3</td>
<td>2.8</td>
<td>1158.8</td>
<td>24.2</td>
<td>325.1</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>15 to 19 Paid Employees</td>
<td>58.1</td>
<td>3.6</td>
<td>1158.8</td>
<td>24.2</td>
<td>325.1</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>20 to 49 Paid Employees</td>
<td>27.6</td>
<td>1.7</td>
<td>1186.4</td>
<td>25.7</td>
<td>325.1</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>50 to 99 Paid Employees</td>
<td>42.2</td>
<td>2.6</td>
<td>1228.6</td>
<td>27.4</td>
<td>377.3</td>
<td>24.7</td>
<td></td>
</tr>
<tr>
<td>100 or more Paid Employees</td>
<td>8.9</td>
<td>.5</td>
<td>1228.6</td>
<td>27.4</td>
<td>377.3</td>
<td>24.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.7</td>
<td>.2</td>
<td>1232.3</td>
<td>27.6</td>
<td>381.0</td>
<td>25.0</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 7

**MANUFACTURING EMPLOYMENT AND VALUE ADDED**

**BY ESTABLISHMENT, 1954**

<table>
<thead>
<tr>
<th>Average</th>
<th>Number of Establishments (thousands)</th>
<th>Per Cent of Total Estab.</th>
<th>Cumulative Per Cent of Total</th>
<th>Value Added by Mfgr. (thousands of dollars)</th>
<th>Per Cent of Total Value</th>
<th>Cumulative Per Cent of Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total all establishments</td>
<td>286.8</td>
<td>100%</td>
<td>...</td>
<td>116912.5</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>1-4 employees</td>
<td>107.0</td>
<td>37.3</td>
<td>37.3</td>
<td>1554.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>5-9 employees</td>
<td>47.4</td>
<td>16.5</td>
<td>53.8</td>
<td>2008.1</td>
<td>1.7</td>
<td>3.0</td>
</tr>
<tr>
<td>10-19 employees</td>
<td>42.0</td>
<td>14.6</td>
<td>68.4</td>
<td>3644.7</td>
<td>3.1</td>
<td>6.1</td>
</tr>
<tr>
<td>20-49 employees</td>
<td>42.8</td>
<td>14.9</td>
<td>83.3</td>
<td>8351.2</td>
<td>7.1</td>
<td>13.2</td>
</tr>
<tr>
<td>50-99 employees</td>
<td>21.1</td>
<td>7.4</td>
<td>90.7</td>
<td>9661.5</td>
<td>8.3</td>
<td>21.5</td>
</tr>
<tr>
<td>100-249 employees</td>
<td>15.6</td>
<td>5.4</td>
<td>96.1</td>
<td>17143.4</td>
<td>14.7</td>
<td>36.2</td>
</tr>
<tr>
<td>250-499 employees</td>
<td>6.1</td>
<td>2.1</td>
<td>98.2</td>
<td>15834.8</td>
<td>13.5</td>
<td>49.7</td>
</tr>
<tr>
<td>500-999 employees</td>
<td>2.8</td>
<td>1.0</td>
<td>99.2</td>
<td>15454.4</td>
<td>13.2</td>
<td>62.9</td>
</tr>
<tr>
<td>1000-2499 employees</td>
<td>1.4</td>
<td>.5</td>
<td>99.7</td>
<td>18927.0</td>
<td>16.2</td>
<td>79.1</td>
</tr>
<tr>
<td>2500-over employees</td>
<td>.5</td>
<td>.2</td>
<td>99.9</td>
<td>24333.0</td>
<td>20.8</td>
<td>99.9</td>
</tr>
</tbody>
</table>

U.S. Census of Manufacturers, Bureau of the Census, Department of Commerce, 1954.
majority of our business institutions. Furthermore, it is clear that for retailing, at least, the tendency is for small businesses to be operated by their owner or owners. Most of these small businesses probably remain in their first growth stage, never experiencing a take-off into rapid growth.

The typical firm in the "small business" stage of growth rests in a traditional or fatalistic society. Such traditionalism was evident in interviews by the writer with some thirty small businessmen in this and a Small Business Administration study. The goal of the owner-manager is to keep the business alive so that it will yield him an income. He measures his success in terms of greater sales or profit than was accomplished in the previous year. He never realizes that growth opportunities might be available to him, generally feeling that the future will be just about what the past has been. To illustrate, the small businessmen interviewed would frequently take a pessimistic view with regard to future business operations, blaming their difficulties on scapegoats like unions, farmers, or a political party.

The owner of the small business does not differentiate between the business objective and his own personal objective. While he may recognize that the firm must give value to the consumer, he tends to think of the firm as a
vehicle for his own livelihood. What he wants for himself, he feels, is profitable operation of the business.

Examples of the attitudes described above may be seen in the description of the early owner-manager's personal and business objectives in two of the interviews with present management in the two companies which had an extended first growth stage. The present entrepreneur in Company B described the objectives of the early owner, his father, as follows: "He was just biding his time trying to make a go of things. All he wanted was to try to make a comfortable living for his family. In other words, he was mainly interested in having food for the table." The entrepreneur of Company D said of the first owner-manager: "He got into the music business after having a small variety store just because he was interested in music. All he wanted from the business was to operate at a profit and to have it continue from one year to the next."

2. **Stage II -- Personal objectives.** Contrasted with the traditional owner-manager the entrepreneur of the second stage of business growth is much more optimistic. He seeks to benefit himself, for a number of reasons, and wants to aid others as well. The latter attitude will be explained more fully later, but it should be mentioned here that the entrepreneur represents a "hero figure" in the organization. Rather than paying his subordinates for
their services, his attitude is more one of rewarding his loyal subjects, with compensation viewed as a gift rather than wage.8

Like Durant at General Motors, Ford at Ford Motors, Bessemer in steel, Arkwright in textiles, and General Henry DuPont at the DuPont Company, the entrepreneurs in the smaller companies also seek a dramatic expansion in the size and strength of their firms. The entrepreneur, like the earlier owner-manager, does not differentiate between business and personal objectives. To him it is his firm and the rewards for its success are his personal rewards. His objectives, unlike his predecessor, are optimistic and forward-looking.

When the entrepreneurs in the present study were asked what they wanted for themselves and the business during the stage or rapid growth their comments were:

   a) I wanted to make a lot of money for myself and for those associated with me. I didn't want to work for anyone else.

   b) I got into the business because I didn't know what else to do, but after a few years my goal was to make a million dollars. I was shooting for the moon!

   c) I wanted to make as much money as possible. I wanted the business to grow rapidly and to show

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8See, for example, Max Weber, The Theory of Social and Economic Organization, p. 361. Further, employees in the present companies which were dominated by an entrepreneur would occasionally mention that they had taken a pay cut to join the firm in lieu of the undefined "opportunities" which the job provided.
a large profit. To do this I had to buy cheap and
to do things like cut price to make sales.

d) My wife had money to start with so that
wasn't a problem. I just wanted to satisfy my own
ego. I wanted to be recognized as successful and
to have prestige.

e) I wanted a challenge, something that would
satisfy me and benefit society. I also wanted to
make enough money to benefit me and to make mil­
lionaires out of my loyal associates. In those
days we said "some day we'll all be driving pink
Cadillacs."

Obviously, many of these goals could not be considered
logical or rational. The desire to become a millionaire,
have the biggest business, or have prestige is hardly the
base upon which a planning or budget program could be based.
Yet these optimistic goals, unfettered by an awareness of
the difficulties involved, were the very spark that lifted
the business from the ranks of the non-growth small
business.

It should be mentioned, finally, that the optimistic
goals of the entrepreneur in the second stage are unattain­
able or at least achievable only in the distant future.
This is true because once an organization of this sort
reaches its goals, its purpose is complete and it is
finished. Thus, the very fact that the entrepreneur sets
such unrealistic goals is to a certain extent a factor for
the organization success. As will be pointed out later,
the group is held together in its effort by its "dream"
of something better.
3. Stage III -- Service objectives. While the entrepreneur may aid in the development of a large group of resources, he is notably unsuccessful in keeping them together. He must either change his mode of operation or be replaced by one who understands the importance of sound management practices. Perhaps the most essential step in the maturity of the firm and in its consequent development of effective management is in its recognition of objectives. By the time that the firm reaches the third stage of growth it has become a cooperative system of many persons rather than a one-man show. The objective of this cooperative system must be non-personal, as opposed to the personal objectives of the persons within the system. As Chester Barnard has stated,

It is frequently assumed in reasoning about organizations that common purpose and individual motive are or should be identical. . . , [but] individual motive is necessarily an internal, personal, subjective thing; common purpose is necessarily an external, impersonal, objective thing even though the individual interpretation of it is subjective.9

Viewed from another aspect, the cooperative system must have its own rational, objective goal if it is to construct a rational organization of effort. Without some

9The Functions of the Executive (Cambridge: Harvard University Press, 1946), pp. 88-89. Mr. Barnard also states, "It is important to note the complete distinction between the aim of the cooperative effort and that of the individual . . . the objective [of the cooperative system] obviously could not be personal." p. 42.
criteria of value, the system would collapse under the strains of individual motives or give way to the dictation of some outside group like the government or the union.

The types of objectives developed by the third, mature stage of growth may be classified as (a) primary service objectives; (b) collateral service objectives; and (c) secondary service objectives. The primary service objectives of a business organization are the particular set of economic or salable values with which the business serves its customers. By successfully providing these values, the firm, as a collective effort, is then able to reward its participants. This reward is the achievement of the collateral service objectives, which are the values that the firm is expected to supply to individuals or groups that are a part of or are associated with the firm.

Collateral objectives are of two types: collateral social objectives, which are broad economic values for the benefit of society; and collateral personal objectives, which are the values that individuals and groups within and associated with the organization seek to acquire for themselves. It should be noted that while the profit objective of the entrepreneur may have been sufficient in

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10 A full explanation of these three types may be found in R. C. Davis, The Fundamentals of Top Management (New York: Harper and Bros., 1951), pp. 97-106. A brief summary is presented here.
the early stages of growth, the mature firm cannot succeed unless it first accomplishes its primary service objective and then meets the personal objectives of its participants. Barnard recognized this clearly when he said, "personal purposes cannot be satisfied through cooperative action except as there comes into the action an intermediate process."\(^\text{11}\) The intermediate process is, of course, the achievement of the primary service objective.

Secondary service objectives are "values that are needed by the organization, or particular organization elements, to enable it to accomplish its primary and collateral objectives with the required economy and effectiveness."\(^\text{12}\) They are goals which the organization has for its own benefit, usually expressed in terms of accomplishment in the proper quality, quantity, cost, and use of time. As will be seen later, the secondary service objectives are more and more the responsibility of staff departments as the organization grows.

The fact that the service objective is necessary for economic maturity is illustrated by contrasting the objectives of two companies which were achieving maturity successfully with two which did not. In the successful firms

\(^{11}\) Op. cit., p. 32.

\(^{12}\) Davis, op. cit., p. 105.
the top executives recognized the difference between the objectives of the firm -- the primary service objective -- and the objectives of individuals in the company. This recognition is significant since both executive leaders had developed from entrepreneurs.

The remarks of the first may be summarized as follows:

What we want now is profitable operations through planned growth. We want to enter new fields. We want our employees to participate in company ownership. We have an obligation to people inside and outside the business. Our customers must have the best product available. Our competitors deserve ethical and competent competition. Our suppliers deserve fair value for their services.

The emotion of the earlier years of business is past. We realize that none of us will be millionaires, but we can give a superior income to those that have sacrificed to make the company a success. Even my job is less emotional. I can't work as hard or take as much pressure -- I used to put in seventy to eighty hours a week. I have to run things now; I can't have others telling me what to do.

The second successful executive leader said:

We want a substantial business, that is, an institution, that will support our children when they come into the business. Maybe we will merge with another company. I'd like to see the business double in size. My objective for the future is to become chairman of the board and let someone else take over.

The reason why we have succeeded in this business is that we make the best possible product for the customer and then see that the product reaches a satisfied customer. In other words, we don't stop when the product reaches the stores, we help the stores sell the customer by training sales people, guaranteeing everything we sell, and arranging for display and advertising service.
The remarks of the two executive leaders above may be contrasted with those of two entrepreneurs who were unable to evolve into effective administrative managers. As a result their companies reached the beginning of the third stage of growth and then declined.

The first said:

I guess that I'm cold-blooded but I don't think that we owe anything to outsiders, whether they are customers, suppliers, or competitors. I have always stood behind the people that work for me but this will hurt you. Even your employees will do you wrong. I'd like to sell the business if I could.

The second said:

The customer is the enemy. Of course you have to give him good service and charge him fair prices to get him, and we have done a better job of that than any of our competitors. We don't have any obligations to suppliers. I want the business to stabilize and become free from debt. I would be happy with an income of $75,000 to $100,000 a year; I realize now that I'll never be a millionaire.

To summarize the development of objectives in the third stage of growth, the primary service objective is recognized and becomes a critical means by which the participants of the firm meet their own objectives. The primary service objective and the personal objectives of the participants are both clearly defined, so that they can provide a basis for the development of plans and policy.
The Growth of Policy

Business objectives and policy are closely related, for policy guides business activities toward their objectives. Without objectives, policy is meaningless. The source and nature of policy is quite different in each of the stages of business growth. In this section we shall explore these differences.

1. Stage I -- Policy by precedent. The small business is not unlike the feudal manor or the extended-family of the Orient in that the policies under which it operates are established by precedent. The policies of the small businessman arise through precedent in two ways. First, some attitudes and beliefs are present because of tradition; that is, "things have always been done that way." Secondly, some arise within the owner-manager's legitimate sphere of free personal decision. These appear to be largely in his area of face-to-face leadership responsibility.\(^\text{13}\)

The small businessman does not consider himself a policy-making executive. He tends to be specialized in some operative function and does not recognize his role as a policy-maker. He handles individual problems as they occur with little thought to their relation to any objective

other than short run success and sees no reason for formalizing policy in writing. "Policies to him are often something which big company executives talk about but which, after all, are not the concern of the small businessman."¹⁴

While more consistent and objective policy would undoubtedly be an advantage to the small businessman, the weakness of policy at that stage is probably not critical. The organization is small, the patterns of action are fixed by tradition, and the ruling figure of the organization, the owner-manager, acts as a focal point for questions of action. The firm in this stage is in an economic rut from which policy alone cannot remove it.

The small-businessman's attitude toward policy may be best summarized by his answers to the question "What is policy?" Typical replies:

   Policy in this company is the way I call the shots.
   Policy equals me.
   Policy in this company is anything that involves much money, important customers, or a change from the way we used to do the job.¹⁵

Such remarks indicate that the small businessman typically does not understand the nature or the function of administrative policy.


¹⁵ Ibid., p. 190.
2. **Stage II -- Entrepreneurial policy.** The statements made about policy by the entrepreneur in the second stage would sound quite similar to the examples given above, but the circumstances under which they were given would be quite different. The small business manager gets his traditional right to make policy as a result of his ownership of resources. In other institutions and societies this right also comes from being the oldest member of the organization, or by being the person who has inherited the right to lead and make policy.\(^\text{16}\) In this light, the owner-manager is merely interpreting the way things have always been done.

The policy-making of the entrepreneur, on the other hand, stems from his exceptional power or ability. He has the quality of "charisma" which is the quality of personality which sets him apart from ordinary men and endows him with "supernatural, superhuman, or at least specifically exceptional powers."\(^\text{17}\) A promoter and a builder, he represents a "hero figure" to the members of the organization. His policy is his own creation as it is needed to meeting the dynamic needs of the situation.

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Walter Chrysler, who was once general manager under William C. Durant at General Motors, has provided a vivid illustration of Durant's policy-making. Durant was, of course, an excellent example of an entrepreneurial type. Chrysler said of Durant's policy:

A number of arguments on matters of that kind occurred during our three years together. I remember I went to see him once and said, "Billy, for the love of ___ please, now, say what your policies are for General Motors. I'll work on them; whatever they are, I'll work to make them effective. Leave the operations alone; the building, the buying, the selling and all the men -- leave them alone, but say what your policies are."

Billy laughed at me. "Walt, I believe in changing the policies just as often as my office door opens and closes."\(^{18}\)

The policy-making by the entrepreneur may be likened to the improvisation of the artist. He is unguided by a rule of law, relying instead on his intuitive ability to deal with the complexities of rapid, unstructured growth. The entire organization bears the stamp of his personality and leadership, and he constantly redirects the efforts of various organizational parts to meet the ebb and flow of changing conditions.

While the entrepreneur casts a dominant image over the entire organization, making most important decisions, he is quick to realize the value of the specialists which

he commonly brings into the organization. He is not likely to feel, as the small owner-manager, that he "cannot be told." Rather, he is quite eager to get the opinions of highly skilled functional specialists. He accepts their opinions and recommendations, making hasty policy that may benefit one function in the business, to the harm of others; or, that may benefit the firm in the short run to the detriment of its long run position.

The policy of the entrepreneur is not based upon principles of action, since it is premised on a view of the firm as one man as opposed to a rational institution. Under these conditions there is no place for the necessary legal and rational concept of authority which yields scientific principles of behavior. Thus, there is an absence of the necessary legal precedent through which principles of management can be developed. 19

It is difficult for policy to become formalized under such conditions or for the responsibility for policy-making to be delegated. Policies cannot be put in writing for they are seldom well defined and unlikely to remain the

19 "There is no system of formal rules, of abstract legal principles, and hence no process of judicial decision oriented to them. But equally there is no legal wisdom oriented to judicial precedent. Formally concrete judgments are newly created from case to case and are originally regarded as divine judgments and revelations." Weber, op. cit., p. 361.
same for very long. It is difficult, for example, to create an adequate policy base when the stated objective of the business is to "make a million" or to "shoot for the moon." For this reason, in the second stage of growth policy-making remains the centralized responsibility of the entrepreneur.

3. **Stage III -- Group policy.** By the time the firm reaches the third stage of growth it will have developed new characteristics, an important one being policy. The key role of policy may be seen when it is realized that the organization in the third stage becomes based upon a concept of legal authority and rational relationships. Ownership and management will commonly have become separate, supported in part by the incorporation of the firm. Operations will be performed within a framework mutually consistent system of principles and rules of action. The weak or absent policy of the traditional leader of the first stage of growth, and the dogmatic, conflicting entrepreneurial policy of the second stage becomes replaced with a more scientific and deliberate type of policy in the third.

An important factor in the continued success of the firm in the third stage is its ability to develop sound policy that is in keeping with the requirements of a scientifically managed business. By this is meant policy
that is "essentially a principle or group of related principles, with their consequent rules of action, that condition and govern the successful achievement of certain business objectives toward which they are directed."  

Such policy supplies a meaningful relationship between the business objectives on the one hand and organizational functions, physical factors, and personnel on the other.

Where the establishment of entrepreneurial policy was a minor part of his art of business direction, the establishment of business policy is a major part of the science of management practiced by the executive leader. This important responsibility for policy-making by top management as opposed to day-to-day decision making is well illustrated in a remark in a General Motors stockholder report in 1937:

By "administration" is meant the daily conduct of the Corporation's affairs. By "formation of policies" is meant both the establishment of the broad principles by which the administration is to be guided and the determination of the fundamental concepts of the business. The prime objectives of the business; the scope of its operations, both as to products and markets; the desirability of expansion, horizontally or

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20 Davis, op. cit., p. 173.

21 As they are used here an art is a skill gained through intuitive ability and practice while a science is an organized, rational body of thought derived from the application of the scientific method. It is recognized that there is still some argument among management authorities about whether management is a science.
vertically or both; the provision of the essential capital for its operations, and the question of distribution of its profits as between the amount paid in dividends and the amount retained in the business -- all are problems involving "formation of policies" and illustrate the principle involved.22

To add another comparison, instead of being an individual process, as it was in the second stage, policy making in the third stage is largely a group process. Indeed, the term "policy" has its origin in the Greek word politeia meaning polity or government. By group process it is not meant that the organization is run by its operative levels, for to allow this would lead to organizational anarchy. Nor does it mean the same situation as existed in stage two, with an intrepreneur who was quick to accept the suggestions of functional specialists. Instead, the term "group process" means that in the complex organization of the third stage and within the legal concept of authority, the role of policy-making becomes the specialized responsibility of top management. And, because of the need to coordinate the activities of the various parts of the business, the top management executive group commonly initiates policy only after a careful consideration by some group.

The fact that the group process of policy-making aids in comprehensively coordinating the functions of the business may be seen in the fact that two important policy-making groups in many companies are the board of directors and a top management executive committee. The executive committee generally contains the heads of all major divisions or functions. The group process also helps to avoid the inconsistency of entrepreneurial policy by being more judicial and deliberate. For example, Standard Oil of New Jersey adopted the principle of policy formulation by committee in 1941. Frank Adams, chairman of the policy committee stated, "it stands to reason that if you get five men together and one man is wrong, the mistake is going to be picked up. Or if one man has a good idea, the others will contribute to it and develop it."23

In the third stage of growth in small businesses, such as those in the present study, the change to delegated group policy making tends to be somewhat delayed, especially when the entrepreneur evolves into an executive leader instead of being replaced by one. Nevertheless, three of the five firms studied here had begun to formalize their policy function by having it recorded and printed. Of the remaining two, one had failed to institute sound management

in the third stage and was in a period of decline, while
the other was just entering the third stage. In the move­
ment into the third stage of larger businesses, the formal­
ization of the policy function is more distinct.

The presence of a sound administrative policy function
in the third stage of business growth serves two important
ends, both of which are in keeping with the evolutionary
changes of growth. First, the policy aids in preserving
the unity of the organization. Second, it permits
decentralization of responsibility and authority. Regarding
the first, just as the achievement of the primary service
objective is necessary as an intermediate step in meeting
individual personal objectives, so there must also be a
body of policy which directs the activities of all of the
various organizational units toward the primary objective.

Recent writers in the behavioral sciences have com­
mented upon the fact that the objectives of the individual
in an organization are not necessarily compatible with the
objectives and policies of the large organization as a
whole. These writers fail to recognize that good morale
and productivity of the organization are a result of an
integration of interests, both organizational and individ­
ual, and not in making them identical.24 When the firm
grows to the point where it is a large, complex group

24 Davis, op. cit., p. 546.
containing many smaller subordinate groups, instead of being merely one smaller group, it must have certain policies or "universal ideas" to preserve its unity and efficiency.  

Secondly, as was mentioned above, the development of a body of sound administrative policy is necessary in order for decentralization to take place. And, obviously, decentralization must take place when the firm reaches the point in size and growth where a rational organization structure is required. Some results: Deviations from planned courses of action are avoided since subordinates know why rules are to be followed. Consistency of action is insured, since the entire organization is guided by the same basic principles. Cooperation is promoted and coordination facilitated. An intelligent exercise of initiative is encouraged, since each person knows his job. Similarly, by knowing what is expected of him his attitude toward the company is better. Finally, policy furnishes a basis for controlling and evaluating performance.

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25 One early sociologist did apparently recognize the importance of policy, saying that the large group had to develop certain "universal ideas" or policy in order to hold it together. He said also, "the relationships of persons to person, which constitute the life-principle of smaller circles, are not easily compatible with the distance and coolness of the objective-abstract norms without which the great group cannot exist." George Simmel, "The Number of Members as Determining the Sociological Form of Groups," I, The American Journal of Sociology, Vol. VIII (1902), p. 12.
The administrative initiated policies of the third stage permit the individual to exercise his own initiative to a much greater extent than would otherwise be true without policy statements. Entrepreneurial policy, is a fluid thing, changing as the whims of the entrepreneur change; as a result subordinates must constantly check with him for new policy interpretations or else avoid decision-making altogether. But where policy is clearly defined at all levels, and responsibility and authority for decision-making has been delegated, then employees are encouraged to make their own decisions, knowing that they are within policy limits. For example, Sloan's policy method at General Motors

... helped to keep most of the good men. . . , since it gave them scope for their talents. Yet it kept within bounds that individualistic and separatist group which forever threatened to break asunder in Durant's day.26

The development of sound administrative policy in the third stage is thus a vital part of its achievement and continued success. Without such guides, the organization may well fly apart once it grows beyond the point where organizational disequilibrium can no longer be tolerated.

The Relationship of Objectives and Policy to Business Growth

It might be expected that the objectives and policy of the entrepreneur or executive leader would have a great deal of effect upon the make-up of growth in the firm. A drive for personal wealth by an entrepreneur could mean a policy of withdrawing profits for personal benefit while a goal of power might mean reinvestment of earnings for further growth. Further, while hedonistic goals may suffice in the second stage of growth, they may lead to the downfall of the firm if they are not supplanted by the primary service objective by the third stage.

This section attempts to relate the objectives and policy of the five firms in this study to the empirical measures of their growth. Data for sales, assets, and employment are given in order that the relative rate of growth of each may be studied. These figures are also compared by growth stage so that the different rates of growth in each stage is illustrated.

Finally, an actual and a theoretical growth curve is presented, illustrating the level of sales that was or should have been attained by the firm if all criteria of growth were met as the firm developed upon a single product
The exact statistical technique for fitting the theoretical curve is explained fully in Appendix B. It should be pointed out that the nature of the curve is such that a firm should be able to predict the asymptote of its product base in advance, thus greatly facilitating its long range planning and organizing.

Theoretically it might be supposed that, as all factors in the production function are varied, the firm would experience increasing returns to scale. These returns would occur because of the more efficient use of certain indivisible productive factors and because of the greater degree of specialization that is possible with growth. This more efficient use of capital and labor on one hand, and the higher profit margins on the other might then be expected to bring about an increase in sales income faster than the rate of capital investment. Certainly this should be the case at least to the middle of the growth stage. As will be shown, while this is generally the case, policy and objectives may strongly influence the use of factors.

1. Company A. Company A is useful in illustrating growth patterns for several reasons. First, it is the first firm in a new industry and so might be expected to show

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27 It should be pointed out again that the term growth refers to an exponential increase in the indices used, rather than to other common definitions of "growth" firms. See Chapter I, pp. 21-25.
considerable rapid growth. Second, it has been started by a stereotype of the entrepreneur who, nevertheless, has come to realize the importance of sound organization and executive leadership as growth has progressed. Consequently, changes have been smoother than they might have been if crises had been allowed to develop. Third, the personal objectives and policies of the entrepreneur are reflected in the patterns of growth of the firm. Finally, the firm has not gone much beyond the middle of the growth curve, permitting a forecast of the latter half of the growth curve.

As shown in Tables 8, and 9 the firm has deviated from the expected relationship between sales, investment, and employment. The rate of growth in sales and employment has declined, as indicated, but investment in assets has actually increased in recent years. This considerable increase is explained by the fact that the firm has introduced a policy of equipment rentals which required considerable investment, but did not increase sales income until recent months. The normal relationship would probably exist between the two if investment in the rental program could be deducted.

Sales and assets are shown in index form (1951=100) because the firm felt that to release actual figures at the present time would not be wise competitively.
<table>
<thead>
<tr>
<th>Year</th>
<th>Index of Total Sales (1951=100)</th>
<th>Per Cent Change From Preceding Year</th>
<th>Index of Total Net Assets (1951=100)</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Employment</th>
<th>Per Cent Change From Preceding Year</th>
</tr>
</thead>
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<tr>
<td>1951</td>
<td>100</td>
<td></td>
<td>100</td>
<td></td>
<td>23</td>
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<td>59</td>
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<td>86</td>
<td>-13.6</td>
<td>109</td>
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<td>102.4</td>
<td>84</td>
<td>-2.2</td>
<td>100</td>
<td>-8.2</td>
</tr>
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<td>1954</td>
<td>249</td>
<td>109.6</td>
<td>124</td>
<td>47.1</td>
<td>113</td>
<td>11.3</td>
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<tr>
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<td>561</td>
<td>125.9</td>
<td>267</td>
<td>114.5</td>
<td>118</td>
<td>66.3</td>
</tr>
<tr>
<td>1956</td>
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<td>22.6</td>
<td>353</td>
<td>32.3</td>
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<td>25.2</td>
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<td>1957</td>
<td>704</td>
<td>2.2</td>
<td>440</td>
<td>24.7</td>
<td>340</td>
<td>31.7</td>
</tr>
<tr>
<td>1958</td>
<td>607</td>
<td>13.7</td>
<td>858</td>
<td>94.8</td>
<td>353</td>
<td>3.8</td>
</tr>
<tr>
<td>1959</td>
<td>1229</td>
<td>102.3</td>
<td>937</td>
<td>92.3</td>
<td>398</td>
<td>12.7</td>
</tr>
</tbody>
</table>
TABLE 9

AVERAGE YEARLY GROWTH IN SALES, ASSETS, AND EMPLOYMENT, BY GROWTH STAGE, COMPANY A, 1951-1959

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Periods</td>
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</tr>
<tr>
<td>1951-1955</td>
<td>74.1</td>
<td>36.5</td>
<td>110.6</td>
</tr>
<tr>
<td>1955-1959</td>
<td>35.2</td>
<td>61.0(^a)</td>
<td>18.3</td>
</tr>
<tr>
<td>1 Period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1951-1959</td>
<td>54.7</td>
<td>48.7</td>
<td>64.47</td>
</tr>
</tbody>
</table>

\(^a\)Includes investment in rental program.
Another unusual situation which is revealed in this company but not in the others was an increase in employment during early years at a rate faster than output. This particularly unusual phenomenon reflects the belief of the entrepreneur that a successful firm is built upon "an idea, men, and money, but chiefly good men." He thus maintained a policy of building a strong executive organization, even in early years. This policy has paid off handsomely since the firm has considerable strength in its management ranks which has been able to develop and accept authority as the firm has begun to mature. An example of the policy is well illustrated in the two accountants employed by the firm almost at its inception; normally, a firm will delay efficient control until much later in its growth cycle. The policy is also reflected in the ability of men at all levels in the organization. Managers develop their subordinates in order to leave the way open for their own promotion.

The comparison of the actual with the theoretical rate of growth in Figure 1 is also interesting. The firm has not progressed far enough on its growth curve to show the normal leveling off near the asymptote. Consequently more attention had to be paid to the point in the growth stage where the rate of growth began to decline. This, too, was somewhat blurred by the sensitivity of the firm's sales to
Fig. 1. Actual and Theoretical Growth Curves, Company A, Based on Yearly Sales.

\[ N(x) = \frac{1}{4} \int \frac{(t - 1958.0)^2}{2(4)^2} \, dt \]
economic conditions. As a result of these difficulties, it was necessary to plot three growth curves, all of which fit the early years of growth fairly well, but only one of which comes close to the total fit. As may be seen, the three coefficients of correlation were .86, .779, and .75. If the considerable lag in sales in 1958 is eliminated as unusual, then the coefficient is in the high .90's. On this basis, it is likely that the company will reach the maturity of its present product base at a sales index of 2150 about 1968.

2. Company B. This firm provides an interesting example of an organization which successfully passed from a small business stage into a period of dynamic growth, but which subsequently failed to achieve the third stage of sound management. The owner-manager who started the business and whose objective was to earn a comfortable living for his family succeeded only in achieving insolvency twice during the period from 1931 to 1940. Nor was the son of the owner-manager able to do much until after the war when conditions were ripe for a take-off. At that time the son took on the role of the entrepreneur, deciding to "shoot for the moon" and "make a million dollars."
As Table 10 shows, the firm's sales increased rapidly in the second stage, particularly after 1944. They reached a maximum yearly increase of 349.5 per cent from 1945 to 1946. They reached a peak of $951,000 in 1951, and, instead of continuing a gradual increase, began a general decline. Instead of the necessary primary service objective as an intermediate force to hold the larger organization together and give it purpose, the entrepreneur retained his own personal objectives and policy.

Table 11 shows the average yearly increases of sales, assets, and employment by growth stages. The part of Stage II for which comparable information is available has also been divided into two periods so that the declining rate of growth may be seen. Growth was 129 per cent a year from 1945 to 1948; 35.4 per cent from 1948 to 1951. From 1951 to 1959 the yearly average was a negative rate of 2.3 per cent.

Since the entrepreneur's objective was profit one would expect the normal relationship between rates of sales, asset, and employment growth to prevail, as indeed it did. From 1945 to 1951 they grew at a yearly rate of 82.2, 64.4, and 42.4 per cent respectively. Only in the latter part of the second stage did employment grow faster than sales, apparently because of the optimism of the entrepreneur in employing additional personnel.
<table>
<thead>
<tr>
<th>Year</th>
<th>Total Sales</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Net Assets</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Employment</th>
<th>Per Cent Change From Preceding Year</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1942</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1943</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1944</td>
<td>26,226</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1945</td>
<td>70,628</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1946</td>
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<td>77,357</td>
<td>199.7</td>
<td>13</td>
<td>62.5</td>
</tr>
<tr>
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<td>22.8</td>
<td>155,000</td>
<td>100.4</td>
<td>18</td>
<td>38.5</td>
</tr>
<tr>
<td>1948</td>
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<td>147,790</td>
<td>1.9</td>
<td>21</td>
<td>16.6</td>
</tr>
<tr>
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<td>96.6</td>
<td>192,725</td>
<td>22.1</td>
<td>27</td>
<td>23.8</td>
</tr>
<tr>
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<td>48.4</td>
<td>59</td>
<td>118.5</td>
</tr>
<tr>
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<td>951,192</td>
<td>17.9</td>
<td>325,336</td>
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<td>56</td>
<td>-5.4</td>
</tr>
<tr>
<td>1952</td>
<td>925,180</td>
<td>-2.7</td>
<td>273,178</td>
<td>-16.0</td>
<td>42</td>
<td>-25.</td>
</tr>
<tr>
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<td>894,950</td>
<td>5.2</td>
<td>328,102</td>
<td>9.7</td>
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<td>-2.2</td>
</tr>
<tr>
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<td>824,261</td>
<td>-7.8</td>
<td>358,337</td>
<td>9.2</td>
<td>33</td>
<td>-22.7</td>
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</tr>
<tr>
<td>1957</td>
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<td>308,967</td>
<td>-19.7</td>
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<td>12.8</td>
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<tr>
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<td>360,836</td>
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<td>29</td>
<td>-34.</td>
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<tr>
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<td>738,303</td>
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<td>451,567</td>
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<td>34</td>
<td>17.2</td>
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</table>

\(a\) Estimate by present owner.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
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<td>Stage II&lt;sup&gt;a&lt;/sup&gt;</td>
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<td></td>
<td></td>
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<tr>
<td>2 Periods</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-1948</td>
<td>129.0</td>
<td>100.6</td>
<td>39.0</td>
</tr>
<tr>
<td>1948-1951</td>
<td>35.4</td>
<td>28.1</td>
<td>45.3</td>
</tr>
<tr>
<td>1 Period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-1951</td>
<td>82.2</td>
<td>64.4</td>
<td>42.4</td>
</tr>
<tr>
<td>Stage III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1951-1959</td>
<td>(2.3)</td>
<td>5.2</td>
<td>(3.5)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Partial. Figures for 1942-1945 are not complete.
The data on sales growth is compared with the theoretical potential of the firm in Figure 2. Had the firm successfully achieved the demands upon management in stage three, it would have reached yearly sales of nearly one million dollars, and perhaps even more. The theoretical fits the actual curve with a coefficient of correlation of .950. Rather than benefit by the fruition of that base, however, the entrepreneur left it to decline while concentrating his efforts on another enterprise. In other words, unable to adapt to the demands of executive leadership, he concentrated upon the exploitation of a new product base.

3. Company C. Of the five companies to be found in the present study, Company C has the most regular growth and conforms best to the hypothesis that increasing returns to scale should generate greater efficiency in sales income from a given investment and employment, at least to the midpoint of the growth curve. It is also interesting to note that the curve lacks the initial surge of sales that is characteristic in most of the other companies. This temperate growth rate may be the result of a moderate degree of entrepreneurial spirit on the part of the president. While in some respects he fits the stereotype of the entrepreneur, he nevertheless lacks the obsessive drive that is so often found. In other words, the objective of the entrepreneur in this company was simply the
Fig. 2. Actual and Theoretical Growth Curves, Company B, Based on Yearly Sales.
achievement of "prestige" and to "satisfy his ego." He already had personal wealth, his wife having inherited a sizable sum, but wanted the satisfaction of having a successful business.

In addition to placing his moderate personal objective first, the entrepreneur in Company C also made all major policy decisions himself. These were changed as conditions changed. For example, a personnel policy of employing inexpensive labor from poor rural areas changed rapidly when it was discovered that these persons tended to agitate for unionism more than better educated high-school graduates. The responsibility for policy decisions in some functional areas has been abdicated by the entrepreneur and is held by various functional subordinates. There are almost no written records, certainly none concerning policy.

Table 12 shows the yearly growth of sales, assets, and employment under these conditions and Table 13, shows averages of these rates in the second stage of growth. The economy of growth is spotlighted by the fact that the firm increased its sales from $29,000 in 1950 to $254,000 in 1955 with only an average increase in employment of 11.2 per cent per year. Furthermore, the rate of investment also followed the increase in output at a lower rate. Only in the second period shown for stage two did an irregularity occur, this being an increase in employment faster than the
<table>
<thead>
<tr>
<th>Year</th>
<th>Total Sales</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Net Assets</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Employment</th>
<th>Per Cent Change From Preceding Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>29,000</td>
<td></td>
<td>24,311</td>
<td></td>
<td>10</td>
<td></td>
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<tr>
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<td>36,843</td>
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<td>50.0</td>
</tr>
<tr>
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<td>128,824</td>
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<tr>
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<td>20.2</td>
<td>17</td>
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<td>143,687</td>
<td>52.4</td>
<td>43</td>
<td>152.9</td>
</tr>
<tr>
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<tr>
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<td>60</td>
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<td>323,820</td>
<td>13.7</td>
<td>70</td>
<td>16.7</td>
</tr>
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</table>
### TABLE 13
AVERAGE YEARLY GROWTH IN SALES, ASSETS AND EMPLOYMENT, BY GROWTH STAGE, COMPANY C, 1950-1960

<table>
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<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
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<tr>
<td>Stage II</td>
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<td></td>
</tr>
<tr>
<td>2 Periods</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1950-1955</td>
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<td>32.2</td>
<td>35.8</td>
<td>11.2</td>
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<tr>
<td>1955-1960</td>
<td>36.3</td>
<td>29.1</td>
<td>30.8</td>
<td>42.5</td>
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<tr>
<td>1 Period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950-1960</td>
<td>46.8</td>
<td>30.5</td>
<td>33.3</td>
<td>26.8</td>
<td></td>
</tr>
</tbody>
</table>
growth in output. This may have been a "catching up" from the low earlier rate, since the over-all rate is less than the growth in output as it should be.

As Figure 3 illustrates the firm has reached the point where it must begin to develop the strengths of good management in order to endure at maturity. By another four years it should have completed the cycle, according to the theoretical curve of sales. The coefficient of correlation of this curve to the actual is .967. The objective of the entrepreneur who is aware of the coming change is to "have the business become an institution," yet only the first steps in this direction have been taken. Objectives are not defined and planning, organizing, and controlling of the basic management factors is only just begun.

In sum, the growth history of the firm is an accurate reflection of the objectives and policy of the entrepreneur. The growth is restrained because the entrepreneur's goals were moderate. The firm has benefited from the increasing economies of growth in assets and employment. Yet despite this success during the growth stage, the firm may falter if it does not develop its primary service objective and adequate administrative policy.

4. **Company D.** In some respects Company D seems a poor example of business growth; its pattern is erratic and its rate is rather slow when compared to the other four
Fig. 3. Actual and Theoretical Growth Curves, Company C, Based on Yearly Sales.
companies. Yet in other respects it is perhaps more revealing than the other firms studied; it managed to generate a take-off in a declining industry and it was directed by a man who is a good example of the entrepreneur. The firm is also useful because it shows all three stages of growth. This is particularly helpful in discussing the third stage, since the firm succeeded in eventually reorganizing itself in spite of the failure by the entrepreneur to do so at the proper time.

The exact point of take-off in this company is not clear-cut. The firm appears to have generated some growth after its move to a new location and the entrepreneur then built its growth pattern upon this. Thus the factors generating a take-off are spread between 1947 and 1950. After its take-off, as shown in Table 14, the firm experienced rather erratic but substantial growth until its collapse after 1956.

There is some evidence from the history of this company and others that the firm which fails to develop sound scientific management and organization during the second half of its growth stage may actually become "stunted" at a level lower than its potential growth would permit. The size at which the firm is stunted will probably depend upon the capacity of the entrepreneur and the degree of management practices, if any, which have been introduced. Some
TABLE 14

YEARLY SALES, ASSETS, AND EMPLOYMENT PLUS PERCENTAGE CHANGE FROM PRECEDING YEAR, COMPANY D, 1945-1960

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Sales</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Net Assets</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Employment</th>
<th>Per Cent Change From Preceding Year</th>
</tr>
</thead>
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<td></td>
<td></td>
<td>2</td>
<td>50.0</td>
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<td>0</td>
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<tr>
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<td></td>
<td></td>
<td>4</td>
<td>50</td>
</tr>
<tr>
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<td></td>
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<td>0</td>
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<tr>
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<td></td>
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<td>16</td>
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</tr>
<tr>
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<td>26</td>
<td>62.0</td>
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<td>67,333</td>
<td>44.2</td>
<td>24</td>
<td>-7.7</td>
</tr>
<tr>
<td>1960</td>
<td>112,650</td>
<td>3.2</td>
<td>63,044</td>
<td>-6.3</td>
<td>28</td>
<td>16.7</td>
</tr>
</tbody>
</table>
firms may never reach the sales potential of their product curve; others, like Company D, may reach it and then withdraw to a lower level.

Table 15 provides an interesting comparison with the stated objectives of the leadership in the various stages. In stage one when the leadership was that of a "small business" type, the leader wanted only to "have the business continue to make a profit." He may have been successful in that respect, though operations were at a low level of sales. Asset figures are not available for the period, but employment actually increased faster than sales. This is accounted for by the "lumpiness" of labor at such a low level, causing uneconomic use of personnel.

The situation in the first stage may be compared with that of the second where the entrepreneur's stated objective was "to make as much money as possible." He ruthlessly pursued this goal, concentrating sales efforts on an item whose markup sometimes ran over 100 per cent. Since the strong function of the firm was selling, he employed any person applying for a sales job. In doing this he lacked any personnel policy or standards, hence the rate of employment grew more rapidly than the rate of sales, and sales per employee actually fell when they should have been rising. The failure of the entrepreneur to institute sound management practices eventually became the downfall of the
TABLE 15

AVERAGE YEARLY GROWTH IN SALES, ASSETS, AND EMPLOYMENT, BY GROWTH STAGE, COMPANY D, 1945-1960

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Stage I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1945-1950</td>
<td>19.2</td>
<td>--</td>
<td>26.6</td>
</tr>
<tr>
<td>Stage II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950-1956</td>
<td>25.1</td>
<td>16.8&lt;sup&gt;a&lt;/sup&gt;</td>
<td>41.3</td>
</tr>
<tr>
<td>Stage III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1956-1960</td>
<td>13.6</td>
<td>1.1</td>
<td>3.7</td>
</tr>
</tbody>
</table>

<sup>a</sup>Does not include increase from 1950 to 1951.
firm leading to a severe crisis in 1956. Sales fell drastically and only recovered when the firm was reorganized. The small average increase in sales is thus the result of a recovery from a low level, as shown in Figure 4. Economies in employment were also restored after reorganization. The mechanics of the latter change will be discussed in a later chapter.

In short, the firm experienced the limited personal objective of the small business owner, the optimism of the entrepreneur, and after a period of crisis made it necessary, the eventual recognition of the primary service objective.

5. Company E. Company E is a good example of a firm which has met the criteria of growth, entering into a period of "compound interest," and is now reaching the point where sound management practices are being added. Although it is not expected to reach the final stage of growth for some four or five more years, preparations are being made to insure an orderly transition and the development of executive leadership capable of planning, organizing, and controlling the firm. Full maturity will not be reached, however, unless these plans are put into action.
Fig. 4. Actual and Theoretical Growth Curves, Company D, Based on Yearly Sales.
Again the objective of the entrepreneur is reflected in the pattern of growth shown in Tables 16 and 17. His stated objective has been to develop a "substantial business" that would grow and develop rather than for "immediate gains." This desire for growth is suggested by the fact that a high rate of investment has been maintained; faster, in fact, than sales during the early years of takeoff and in recent years. Thus, rather than removing investable funds for personal satisfaction as some of the other entrepreneurs did, this leader returned them to the business to meet his growth objective. The firm has also become increasingly aware of its primary service objective, emphasizing the importance of satisfying the ultimate consumer as well as the stores to whom it sells.

As Table 17 shows, the rate of growth has been declining noticeably through the growth cycle. A rate of average yearly growth in sales has declined from 205 per cent in the first five years, to 28.8 per cent in the next five, to 14 per cent in the last three. As might be expected, employment has also grown at a decreasing rate, though below the rate for sales.

With this maturation has come a gradual development of better organization and management. Although built upon a strong sales function, the production and finance functions have been purposely strengthened. Production
<table>
<thead>
<tr>
<th>Year</th>
<th>Total Sales</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Net Assets</th>
<th>Per Cent Change From Preceding Year</th>
<th>Total Employment</th>
<th>Per Cent Change From Preceding Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947</td>
<td>31,000</td>
<td></td>
<td>10,000</td>
<td></td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>1948</td>
<td>280,000</td>
<td>803</td>
<td>102,000</td>
<td>920</td>
<td>79</td>
<td>182.1</td>
</tr>
<tr>
<td>1949</td>
<td>673,000</td>
<td>140</td>
<td>148,000</td>
<td>45</td>
<td>86</td>
<td>8.9</td>
</tr>
<tr>
<td>1950</td>
<td>857,000</td>
<td>27</td>
<td>235,000</td>
<td>59</td>
<td>94</td>
<td>9.3</td>
</tr>
<tr>
<td>1951</td>
<td>1,057,000</td>
<td>23</td>
<td>325,000</td>
<td>38</td>
<td>138</td>
<td>46.8</td>
</tr>
<tr>
<td>1952</td>
<td>1,405,000</td>
<td>33</td>
<td>380,000</td>
<td>17</td>
<td>158</td>
<td>12.7</td>
</tr>
<tr>
<td>1953</td>
<td>1,948,000</td>
<td>39</td>
<td>495,000</td>
<td>30</td>
<td>187</td>
<td>18.3</td>
</tr>
<tr>
<td>1954</td>
<td>1,580,000</td>
<td>-19</td>
<td>424,000</td>
<td>-14</td>
<td>170</td>
<td>-9.1</td>
</tr>
<tr>
<td>1955</td>
<td>2,277,000</td>
<td>44</td>
<td>672,000</td>
<td>58</td>
<td>209</td>
<td>22.9</td>
</tr>
<tr>
<td>1956</td>
<td>3,795,000</td>
<td>67</td>
<td>984,000</td>
<td>46</td>
<td>269</td>
<td>28.7</td>
</tr>
<tr>
<td>1957</td>
<td>4,254,000</td>
<td>13</td>
<td>1,046,000</td>
<td>6</td>
<td>342</td>
<td>27.1</td>
</tr>
<tr>
<td>1958</td>
<td>4,312,000</td>
<td>1</td>
<td>1,168,000</td>
<td>12</td>
<td>355</td>
<td>3.8</td>
</tr>
<tr>
<td>1959</td>
<td>4,451,000</td>
<td>3</td>
<td>1,426,000</td>
<td>12</td>
<td>342</td>
<td>-3.8</td>
</tr>
<tr>
<td>1960</td>
<td>4,763,000</td>
<td>7</td>
<td>1,625,000</td>
<td>14</td>
<td>378</td>
<td>10.5</td>
</tr>
</tbody>
</table>
### TABLE 17

AVERAGE YEARLY GROWTH IN SALES, ASSETS, AND EMPLOYMENT BY GROWTH STAGE, COMPANY E, 1947-1960

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Stage II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Periods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1947-1952</td>
<td>205.2</td>
<td>215.8</td>
<td>221.2</td>
<td>52.0</td>
</tr>
<tr>
<td>1952-1957</td>
<td>28.8</td>
<td>25.2</td>
<td>27.9</td>
<td>17.6</td>
</tr>
<tr>
<td>1957-1960</td>
<td>3.7</td>
<td>16.0</td>
<td>14.7&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.5</td>
</tr>
<tr>
<td>1 Period</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1947-1960</td>
<td>90.8</td>
<td>96.3</td>
<td>99.2</td>
<td>27.6</td>
</tr>
</tbody>
</table>

<sup>a</sup>Lower than Net Asset figure because of addition of related subsidiary corporation after 1958.
controls and standards have been emphasized. Financial plans and budgets have recently been introduced. Plans are being made for management succession as the needs of leadership change and the present leadership steps out of the picture. And, policies are being developed in an executive committee and being put in writing in the committee minutes.

Figure 5 illustrates the pattern of growth in the firm. The coefficient of correlation of the theoretical to the actual curve is .96. If the predicted trend continues under the present conditions, it is expected that the firm will complete the cycle by about 1964 with a sales peak of between five and one-half and six million dollars.

In short, the firm has achieved a long period of dynamic growth through meeting the criteria of growth and by a high rate of net investment. Had the personal objective of the entrepreneur been immediate profit instead of growth, it is unlikely that this success could have been achieved. The firm is also beginning the development of the needs for maturity.

Summary

The results of an analysis of growth of policy and objectives may be summarized as follows:

1. An economy, an industry, and a firm may each go through the same S-shaped growth curve, each of which is
Fig. 5. Actual and Theoretical Growth Curves, Company E, Based on Yearly Sales.
independent of the other two. The stages in each of the
curves will, nevertheless, contain characteristics that are
quite similar to those in the same stage of a higher or
lower level institution.

2. A majority of the firms in this country never
experience a real take-off, remaining small and concerning
themselves with problems of continuing their existence.
They lead tenuous lives, operated by their owners who do
not recognize the possibility of growth. These owners are
in a sense, limited by their own fatalistic personal
objectives.

3. By contrast with the non-growth firm, the objective
of the entrepreneur in the second stage is personal wealth
and power obtained through the exploitation of an innovative
opportunity. He is optimistic to the point of overlooking
many of the difficulties and uncertainties involved.

4. The firm which is to achieve maturity must recog-
nize an impersonal service objective that is separate from
the objective of the participants in the organization. The
achievement of the service objective is an intermediate
process which must be accomplished before other objectives
can be met if the firm is to remain an efficient whole.
In other words, the primary service objective is a
critical factor in continued business success and the
reward of the participants.
5. Policy is of little consequence to the typical small businessman. Being bound by tradition, he is in an economic rut.

6. The entrepreneur's policy changes as his personal whims change. As a result, the entire organization is dependent upon the central figure and can function effectively only so long as he can handle all important matters personally. He functions as an artist, redirecting organizational efforts to meet changing conditions. Such conditions make the organization quite flexible in responding to different situations, but they limit effective decentralization of responsibility and authority. One-man policy making by the entrepreneur can ultimately lead to failure if carried beyond the stage of rapid growth.

7. Policy in the third stage must be based upon the fundamental principles of management. That is, it must have the scientific rationality and formality of a legal system of authority. This policy evolves from the top management group as opposed to the whims of the entrepreneur. Such group policy aids in preserving the unity of the organization and in permitting decentralization.

8. Economies of scale are clearly evident in the growth pattern of the companies studied. Output represented by sales generally increased at a more rapid rate than investment in assets, and investment more rapidly
than employment. The objective of the entrepreneur and his policies on investment or personnel were of considerable importance, however, since an objective of business growth vis-a-vis personal wealth probably causes a greater reinvestment of earnings than would otherwise occur. Similarly, where the entrepreneur emphasized a policy of strength in the management ranks, a strong executive selection program was evident.

9. Firms which are successful in achieving a take-off will follow a characteristic S-shaped growth curve. By knowing the rate of growth in the years at least to the middle of the growth stage it should be possible to predict, with a high degree of accuracy, the remaining yearly sales in the growth cycle. Similarly, given the initial rate of growth it may also be possible to estimate the life-cycle of a company division when organized on a product-line, profit-center basis. This forecasting technique can be used only so long as the firm has a single product base and has not merged with other firms. By anticipating the maturity of its product base the growing firm may plan effectively for the demands of sound executive leadership and organization. For example, budget programs, executive selection and development, or product research may be planned for introduction at the proper point in the growth cycle.
10. It is clear that the stage of maturity is something that must be achieved by the careful development of sound management and organization practices generally taking place during the latter half of the growth stage. There is evidence that the failure to develop adequate executive leadership and organization at that time may actually "stunt" the growth of the firm at a level lower than its potential growth cycle would otherwise allow.
CHAPTER VI
LEADERSHIP IN GROWTH

Types of Leadership in Growth

It is evident from the discussion in the preceding chapter that the leadership of an organization plays a vital part in the achievement of, first, the take-off, and then the development of successful maturity. Most of the management literature is rightly devoted to the nature and problems of executive leadership necessary to achieve maturity and continued regular growth. Little attention has been paid, on the other hand, to the type of leadership to be found in early stages of growth. Once this difference between leadership in various stages is clarified, it is easier for a firm to plan for future growth.

The interviews in this study tend to confirm the findings of existing research and literature on leadership, indicating that there are at least four different types of leaders. They are: the unimaginative small business leader, the innovator, the entrepreneur, and the executive leader. These types are generally associated with one or several stages in the growth model, as will be explained.
1. The unimaginative small business leader. The fact that well over 90 per cent of the firms in this country have less than twenty employees suggests that we are a nation of small businesses, at least in numbers. While statistics are not available for the educational background of small businessmen, the high mortality of these businesses would lead one to believe that a majority are led by unimaginative business leaders. These are men of limited management ability who operate their firms in a routine traditional way. They are interested only in making a living and define success as continued profitable operation.

The unimaginative small business leader operates his business under a system of traditional authority. That is, his leadership is made legitimate by virtue of his traditional designation as leader, rather than by an earned or achieved right. This traditional legitimacy occurs by virtue of ownership of resources, an inherited position, or mature age in an elite leadership class. Such traditional legitimacy is restrictive to the extent that the leader is bound by past methods, unable to plan for future growth and change. The leader is, however, given an area of free reign in which he is allowed to interpret tradition.
That is, he gives orders not because he is boss, but because he knows how things are "supposed to be done."¹

The leader of this sort operates in his own pre-Newtonian world of business organization and operation. He believes that there can be no such thing as natural laws of operation, presented in the form of basic principles of management. Instead, he operates by trial and error, learning everything by costly "experience."

For these reasons, the small business leader cannot effectively be told how to run his business. He rejects advice from outsiders because of his inability to conceive of change and because to accept their advice would be a rejection of his traditional role. To cite two examples of this rejection of advice: (a) One operator of a small, dingy, poorly stocked hardware store said that he would not belong to a trade association and would not want to attend lectures on hardware business presented by a local university because no one knew how to run his business but himself. "That's because," he said, "we are in a poor neighborhood and sell things that other hardware stores

¹Weber states, "His commands are legitimized in one of two ways: (a) partly in terms of traditions which themselves directly determine the content of the command and the objects and extent of authority. . . . (b) In part, it is a matter of the chief's free personal decisions, in that tradition leaves a certain sphere open for this." The Theory of Social and Economic Organization, p. 341.
don't carry anymore." (b) The owner of a small tool and die job shop, complaining that he was almost insolvent because of the fact that the federal government "is against small business," was not aware that he could elect to be taxed as a corporation, and was unwilling to ask the Department of Internal Revenue about this opportunity.

Since the traditional small business leaves no room for basic principles of operation and organization the only way that leadership can be performed is by personal face-to-face contact. Where a level of supervision does exist it is of little consequence since authority still rests with the leader. The relationship of the leader to his followers is that of the family head with the rest of the family. Roles in the organization are filled by custom rather than by some criteria of job performance. With participation in a group dependent upon performance in an assigned member-role there is no room for development and promotion based on competence. Certain "favorites" may be elevated within the family but otherwise roles are fixed.

This family relationship in the small business perhaps explains why operatives in a dry-cleaning establishment in which the writer once performed an attitude survey were quite content with wages of 40 cents per hour. They liked best the fact that they had little direct supervision and could go and come as they pleased. This also suggests why
unions have been notably unsuccessful in organizing small businesses, while four of the five companies in this study were organized or nearly organized during the latter part of their growth stage.

The leader-follower family of the small business is a conservative group. Change is unwelcome. Roles are fixed. Output per head is fixed. Methods and beliefs are fixed. The leader thus performs a type of simple operative management, relying on his own mechanical or technical skill. There is an absence of other than routine planning, organizing, or controlling since it is expected that operations will continue next year pretty much the way that they occurred last year. The firm may survive for a while in this fashion, but in order to succeed and grow it must have innovation and the other factors of growth.²

2. The innovator. In dealing with the subject of growth one is soon faced with the problem of defining the source of the innovation in terms of a person called an innovator. Since the development of the innovation theory of cycles was developed by Joseph Schumpeter it has been taken for granted that, as he implied, the innovator and the entrepreneur were one and the same. He was careful to distinguish, however, between the inventor who originated

a new idea and the innovator-entrepreneur who adapts an invention to business use. He nevertheless failed to recognize the difference between the innovator, the entrepreneur and the professional business executive.

Schumpeter listed five forms of innovation:

(1) The introduction of a new good -- that is, one which consumers are not yet familiar -- or of a new quality of a good. (2) The introduction of a new method of production, that is, one not yet tested by experience in the branch of manufacture concerned, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling the commodity commercially. (3) The opening of a new market, that is, a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before. (4) The conquest of a new source of supply of raw materials, or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. (5) The carrying out of the new organization of any industry, like the creation of a monopoly position (for example through trustification) or the breaking up of a monopoly position [underlining mine].

The introduction of any one of these innovations by the entrepreneur would, according to his theory, introduce a shock -- the innovation -- into an otherwise equilibrated system, causing disequilibrium and disturbance. His motive is to gain the profit advantage of being the first with the innovation. He thus calculates subjectively the effect of the innovation upon expected profits, these being the

3The Theory of Economic Development, p. 66.
sum of expected receipts less the sum of expected expenses at all moments of time with the planning horizon.

Empirical evidence and authoritative opinion appear to challenge this theory. In the first place, it is unlikely that the entrepreneur is as creative as indicated. Indeed, his personality is quite different from the type of individual who relies mainly upon his mental skills. Secondly, it is unlikely that the entrepreneur is as rational as Schumpeter supposed. His objectives are often vague and emotional rather than logical.

In order to be most accurate it is likely that one must reject the personification of innovation by an innovator in favor of a process of innovation performed by several types of men. In its simplest form the steps of the innovation process would be (a) the conceptualization of a new idea, (b) the development of an idea and its adaptation to business use, and (c) the actual utilization of the idea in business practice.

Thus, it would be most accurate to speak of the "innovators" -- the several persons performing or contributing to the innovative process. Customary usage dictates

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5See Chapter VIII for further details.
otherwise, however, requiring a focus upon one man called an innovator. When one man must be so designated the term "innovator" would best be used for those who perform at least the second step in the innovation process and possibly the first or third as well. He might be the inventor or he might be the entrepreneur, but he could also be a creative individual who lacks the exploitative powers of the entrepreneur but who recognizes the importance of the idea in terms of increased output of goods or services. The importance of drawing these distinctions will be made clear when the role of the staff in the mature organization is discussed. While the small business must discover an innovation to be exploited, the larger, completely managed firm will create opportunities for further growth through its staff agencies.

This definition would also agree with the conclusions of a Ford Foundation study of the development of entrepreneurship in the United States from 1850 to 1957. The author of the study stated:

The implication of the general prevalence of entrepreneurship does not warrant using the terms innovator and entrepreneur interchangeably -- as some would have it. Surely in many firms the person (or group of persons)
who might be said to provide entrepreneurship is rather lacking in innovating ability.\textsuperscript{6}

The greater awareness of the role of innovation in business growth has caused a new concern with the problems and processes of developing important business ideas.\textsuperscript{7} It is realized that innovations are not created automatically by the entrepreneur or business manager, but rather are the creation of an inventive mind. Unlike the unimaginative small business manager, the inventor or innovator is one who seeks to break with the past. He rejects tradition in favor of something new. He believes that progress is possible.\textsuperscript{8} And, he provides the building blocks upon which the entrepreneur builds his economic empire.

3. The entrepreneur. The next type of leadership in the growth model is the entrepreneur. Unfortunately the term has been so widely used in different meanings that

\textsuperscript{6}G. Heberton Evans, Jr., "A Century of Entrepreneurship in the United States," Explorations in Entrepreneurial History, Vol. X, No. 2 (December, 1957), p. 90. The author of the article cited would reserve the term innovator "for those who introduce major changes in the production, transport, and marketing of goods and services and in the business operations (such as record keeping) connected therewith," p. 90. This, however, seems an unnecessary elaboration. What, for example, would constitute a major change?

\textsuperscript{7}The most important recent work on this subject is John Jewkes, David Sowers, and Richard Stillerman, The Sources of Invention (New York: Macmillan, 1958).

\textsuperscript{8}The role of invention and inventors is discussed more fully in Chapter VIII.
one must use care in specifying its use here. The term is supposed to have been introduced by Richard Cantillon in 1755 in his *Essay Upon the Nature of Commerce in General*. He defined the entrepreneur as "the agent who buys means of production at certain prices in order to combine them into a product that he is going to sell at prices that are uncertain at the moment at which he commits himself to his costs." In this sense, it is emphasized that he is one who bears risk and uncertainty.

Since its introduction, the term has been variously used to mean anyone in a leadership position, owner-managers, administrative executives, innovators and promoters, or any kind of business manager. As the term is used in this discussion, however, the entrepreneur is an individual in a position of a business leadership who exploits the business advantage of some innovation which he may have introduced himself or only recognized as existing. One of his greatest talents is that of assembling resources.

His presence and influence are most clearly seen in the second stage of growth where he is a major factor in achieving a take-off and in continuing the period of rapid growth. He is an optimist and a dreamer, who, unaware of

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the dangers ahead, exploits an innovation for his own profit and power. He is described as egocentric, against tradition, and personally ambitious:

The typical entrepreneur is more self-centered than other types [of leadership], because he relies less than they do on tradition and connection and because his characteristic task -- theoretically as well as historically -- consists precisely in breaking up old, and creating new, tradition. Although this applied primarily to his economic action, it also extends to the moral, cultural, and social consequences of it. It is, of course, no mere coincidence that the period of the rise of the entrepreneur also gave birth to Utilitarianism.

First of all, there is the dream and the will to found a private kingdom, usually, though not necessarily, also a dynasty. The modern world really does not know any such positions, but what may be attained by industrial or commercial success is still the nearest approach to medieval lordship possible to modern man.

Then there is the will to conquer, the impulse to fight, to prove oneself superior to others, to succeed for the sake, not of the fruits of success, but of success itself. From this aspect, economic action becomes akin to sport -- there are financial races, or rather boxing matches.

Finally, there is the joy of creating, of getting things done, or simply of exercising one's energy and ingenuity.

The entrepreneur is imbued with the quality of "charisma," or "gift of grace." He represents a hero

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10 Schumpeter, op. cit., pp. 91-93. Contrary to his opinion, the entrepreneur apparently does covet the fruits of his success.

11 A "charismatic" leader is one perceived by followers as having a natural "gift of grace" which enables him to lead them through periods of transition and stress. He is of course an ideal type, yet history provides many examples of men who evidence such characteristics. Weber describes
figure to his subordinates possessing qualities which set him apart from ordinary men. Because of this role, he is most effective as a face-to-face leader and must therefore spend much of his time maintaining contact with subordinates and directing their efforts. His authority is based on an emotional form of communal relationship with employees who identify with the central figure. His followers in the business will say, "I work for John Smith," instead of "I work for the Ajax Company," an identification with the company.

The entrepreneur is likely to be the only person performing administrative management functions in the organization. In the first place, his dominant image precludes the delegation of objective-setting or policy-making to anyone else. In the second, he has neither the time nor the patience to develop subordinate managers. Development

the "charismatic" leader vis-a-vis the expert administrator as follows: "... 'natural' leaders -- in times of psychic, physical, economic, ethical, religious, political distress -- have been neither officeholders nor incumbents of an 'occupation' in the present sense of the word, that is, men who have acquired expert knowledge and who serve for remuneration. The natural leaders in distress have been holders of specific gifts of the body and spirit; and these gifts have been believed to be supernatural, not accessible to everybody." From Max Weber, translated, edited, and with an introduction by H. H. Gerth and C. Wright Mills (New York: Oxford University Press, 1958), p. 245.
of subordinate executives is a long-run and exasperatingly slow process.

It calls for an ability to sense what can be done in the current situation to help a subordinate prepare himself to handle future problems. This ability to sense future needs and to relate them to current operations is not common.\(^{12}\)

Certainly it is not common in the entrepreneur who deals primarily with the problems of the moment, with an absence of long-range forecasting or planning.

To the entrepreneur uncertainty adds interest and zest to action, while to other types of leadership it creates repugnance. Ignorant of the difficulties involved and extremely optimistic he seeks to meet his own personal objectives. Intellectual ability is less important than leadership skill, since he seldom deals with the scientific demands of planning and organizing. In other words, he concentrates upon the tactics of daily operations, rather than the strategy of future moves. As the business grows and more administrative skills are required, it is expected that he will develop more strategic skills or relinquish control of the company to better qualified executive leaders.

The entrepreneur is an instrument of what has been called "daimonic destruction."\(^{13}\) That is, the seed of destruction is implanted with any form of creation, so that economic progress is the result of creation and introduction of innovations which cause a breaking and reshaping of the business organization and its market. The source of progress can also be the reason for its collapse, however, if changes to executive leadership do not take place. In other words, daimonic destruction can lead to "daimonic self-destruction" if the pride by the entrepreneur in his earlier successes leads him to believe that the same methods may continue to be used as the organization reached maturity. \textit{The failure or inability of the entrepreneur to become or be replaced by an effective executive leader can lead to the ultimate destruction of the organization.}\(^{14}\)

Similarly, the followers of the entrepreneur are willing to accept his leadership because of the revolutionary situation which he introduces. To them the entrepreneur...

\(^{13}\)The concept was originally introduced by Paul Tillich and is discussed by Fritz Redlich, stressing mainly the role of innovation itself. \textit{Change and the Entrepreneur}, p. 30.

\(^{14}\)It should be emphasized here that we are assuming only one product base. There are some companies which continue to be operated by entrepreneurs over a long period of time without the introduction of scientific executive leadership. Under these conditions, the entrepreneur will introduce a new innovation as the old base reaches its peak, exploiting the new and allowing the old base to collapse.
represents the possibility of achieving something better out of life or, at most, of rejecting an unsatisfactory present self. The entrepreneur represents newness and change to those who are dissatisfied with their present state or else see in him an opportunity for their own personal reward. When goals have been met or when it is apparent to followers that they cannot be met, then the entrepreneur loses his charisma and employees may change their attitude toward him. Weber has stated, "indeed, in its pure form charismatic authority may be said to exist only in the process of originating. It cannot remain stable, but becomes either traditionalized or rationalized, or a combination of both."\textsuperscript{15}

The implications of the entrepreneurial relationship to his followers may be illustrated by the wage structure involved: Several authorities have pointed out that the revolutionary organization under the leadership of a hero-figure (entrepreneur) is more suitable to a communal relationship than a larger more stable counterpart. In such a situation the followers are quite willing to sacrifice immediate gain for the promise of future reward. Any income granted by the entrepreneur is held to be a gift

\textsuperscript{15}Weber, \textit{op. cit.}, p. 364.
based on the employee's present needs. This also explains why employees are quite willing to work all night if necessary to meet promises made by the entrepreneur with no argument or discussion about compensation.

When the entrepreneur loses contact with his employees or when they lose their respect for him as a hero figure then the entrepreneur must be prepared to pay according to industry or area standard. They will view their jobs as a position in an organization for which responsibility and authority must be compensated. The fact that this is not done may explain the tendency for organization approaching maturity to have trouble with union organization attempts.

The leadership of the entrepreneur is such that he must retain administrative authority himself. He will delegate the responsibility for administrative and operative matters to others, but retains the authority necessary to make important decisions and many minor ones. Thus any supervisory levels in the second stage of growth find themselves in awkward positions sometimes. Like the executives in the old Ford Motor Company in Henry Ford's day they may find their orders countermanded or their positions bypassed altogether. The degree of freedom of

16 "There is no such thing as a salary or a benefice. Disciples or followers tend to live primarily in a communistic relationship with their leader on means which have been provided by voluntary gift." Ibid., pp. 360-61.
subordinate leadership will vary. When the individual exercises highly technical responsibility he often has a great deal of freedom. Or, when the entrepreneur has confidence in his ability, he may be allowed to operate with almost no control by the entrepreneur. Although these arrangements will vary, everyone will feel the effects of the dominant entrepreneurial personality.

The leadership role of the entrepreneur may best be summarized by referring to the basic factors of leadership, the leader, the followers, and the situation. As has been emphasized, the entrepreneur is an ambitious, egocentric, promoter-type of individual who seizes upon an innovation and exploits its advantages unaware of the difficulties involved. He leads his following by impressing his dominant image upon his subordinates, who feel that he is a means to something better. The situation is one of dynamic internal change, upon which the entrepreneur thrives and which the followers view as a sign of progress.

4. The executive-leader. If the firm is to complete its life cycle effectively and continue growth upon a solid base it must develop managerial competence in the form of professional executive leadership. By executive leadership is meant the persons who, in addition to possessing skills of leadership, are in possession of managerial knowledge. This knowledge is the ability to scientifically plan,
organize, and control a firm and is called the "management
process."

Obviously, the entrepreneur and the executive leader
are quite different types:

The abilities to see an opportunity and get a
company going are often not paired with equal
abilities to run the going and growing concern.
. . . The entrepreneur's abundant confidence
that all will turn out well tends to make him
neglect longer-run problems. . . . His practice
of doing most things himself conflicts with the
requirement for working with and through others
if the enterprise is to grow. His personal
methods of keeping track of things make it more
difficult for him to operate when his firm
reaches a size where informal controls are
decreasingly effective. 17

The firm that fails to develop executive leadership
before its entry into the third stage of growth is likely
to become stunted at a lower level of growth which can
be controlled by the entrepreneur or else may die because
of competition or industry decline. In fact, some entre­
preneurs will prefer not to see continued growth, just to
be able to remain in the driver's seat. 18

The reason for the lack of growth under the entre­
preneur as the organization reaches maturity may be under­
stood with reference to economic theory. The complications
which arise from the complexities of management result in

17 Christensen, op. cit., p. 213.

18 Philip Marvin, "What Makes a Growth Company," Man­
decreasing returns to scale. What is overlooked in many cases, however, is that the firm may once more develop increasing or constant returns once it introduces the efficiencies of professional scientific management. It is difficult to convince entrepreneurs of this fact however. They fail to see that by increasing the expense for managers in administrative positions the firm may experience a decreasing average cost of output. This advantage is compounded by the fact that the larger administrative organization permits further growth and introduces economies of size as well as economies of growth.¹⁹

The firm which does complete the growth cycle must either develop the present entrepreneur into an executive leader, staffing his subordinates with professional managers as well, or the entrepreneur must be replaced.²⁰ The replacement of the entrepreneur is an extremely difficult task, particularly if such a move has become critical to continued business success, requiring sometimes an interim management or a temporary top executive leader while a permanent replacement can be found and groomed for the job.

¹⁹Edith Penrose, The Theory of The Growth of the Firm, p. 96. See also Chapter IX in the present study.

When the entrepreneur is also the major stockholder, yet is unable to adapt to the needs of professional management, a solution is sometimes found in the addition of a general manager just below the entrepreneur, allowing the firm to develop its management strengths upon the general manager. In such cases, the entrepreneur may continue within the area of his specialty without damaging the organization and he retains his titular position at the top of the organization.

It should be clear, from the previous statements that (a) the entrepreneur and the executive leader operate in entirely different ways and represent different types of personality, and (b) that sound executive leadership is a prerequisite to the development of a mature organization and continued growth. Perhaps the best way to explain the nature of the executive leader is to contrast the characteristics of himself, his followers, and his leadership situation with those of the entrepreneur.

a) Face-to-face leadership versus executive leadership. The entrepreneur practices a leadership of personality, projecting his charisma to those within his leadership group. Thus he is effective only so long as the organization is small enough to allow him frequent communicative contact with subordinates. The executive leader, on the other hand, is essentially a leader of complex
organizations. While he may be able to influence immediate subordinates with the strength of his personality, his chief ability is that of performing the management process. That is, the executive leader is able to plan creatively the future operations of the business toward its primary service objective; to create and provide basic conditions and relationships that are prerequisite for effective execution of the plan by organizing; and to constrain and regulate action in accordance with the requirements of the plan by controlling. He is more concerned with economies of operation and internal efficiency than with the exploitation of the immediate situation.

The executive leadership in an organization may also be classified according to level of authority, futurity of planning, and general nature of its operation. These classes are administrative management which is concerned with long-range goals, policy-making, major decision-making, and group management; and operative management which is more concerned with particular projects, deal more with day-to-day problems, and has a limited scope of authority.\footnote{No attempt is made here to present a detailed explanation of the management process at the administrative or operative level, since this would be a major project in itself. The most rigorous and rational presentation of the management process and probably the only existing general theory of administration may be found in R. C. Davis, The Fundamentals of Top Management.}
b) **Rule of man versus rule of law.** The organization of the entrepreneur is largely a reflection of his image. The loyalty of his followers is a personal loyalty to a particular individual. The executive leader, on the other hand, leads through a rule of law. This legal authority adds considerable stability to the organization since the functioning of the organization becomes impersonal, not dependent upon any single individual. When an entrepreneur is removed from an organization, the loss can be fatal to continued success; in a well managed company operating within a framework of legal authority the loss of a top manager can be serious but is seldom fatal.

Under the leadership of an entrepreneur subordinates are frequently added with little thought to the limits of their jobs. Lines of responsibility and authority are vague with technical specialties of each subordinate serving as guide lines. Under a legal system of authority, on the other hand, managers are employed to fill a particular area of responsibility and authority on a basis of their technical qualifications, including their ability to perform the management process. They are placed in a position of authority upon the creation of a contractual relationship with the organization. They agree, in effect, to contribute toward the primary service objective in order
that they may achieve their own personal objective. Their compensation is thus a salary based upon the degree of their responsibility and authority within the rational legal system.

Legal authority tends to be formal and impersonal. As such it is efficient and lasting, permitting a solid base upon which further growth cycles may be built. Entrepreneurial charismatic authority, in contrast, is informal and personal. It exists only so long as the entrepreneur retains his image in the eyes of subordinates and it is subject to all of the human frailties and imperfections that its participants may introduce.

c) Management art versus management science. The entrepreneur is an artist performing his "one man show" within the sphere of a single important function. He thrives upon the uncertainty, risk, and disequilibrium which is created in exploiting an innovative opportunity. The executive leader, by contrast, works with and through others through the use of fundamental objectives, principles, and policies. He is a systematic and scientific thinker who utilizes basic principles of management in general, and the objectives and policies of his company in particular, to construct a rational system of business operation.
Thus the executive leader is a professional within his sphere of competence. While the blind faith of the entrepreneur may sustain him temporarily, the only way in which the organization can survive beyond its initial period of rapid growth is for areas of uncertainty and risk to be anticipated, transferred, or reduced. This repugnance for risk and uncertainty on the part of the executive leader is reflected in the various forms of formal planning and control which he introduces into the rational system. Evidence of the shift to executive leadership in the initial growth curve is the introduction of administrative managers who are not owners of the firm, the formalization of areas of responsibility and authority, and the introduction of such tools as budgets, cost controls, written policy manuals, and written procedures.

d) **Simple coordination versus complex coordination.**

"Coordination has to do with the development and maintenance of the proper relationship of activities, either mental or physical."\(^{22}\) Its purpose is to link the organization together as a whole, chiefly by various forms of formal and informal communication. When the organization is built around the entrepreneur, lacking any rational framework, then coordination is dependent upon his ability to keep in

\(^{22}\)Ibid., p. 405.
contact with all parts of the operation. Mistakes can often be covered up by the fact that sales are increasing faster than expenses.

Once the organization becomes complex, however, a formal system of coordination is essential to insure that heterogeneous divisions and departments are contributing first to the primary objective of the business and not to some secondary objective of their own making. The development of standards of thought and action is important in this respect since it aids in common understanding of the action to be taken. Common measures, terminology, specifications, or philosophy are examples of coordinative aids, as are formal procedures and controls.

Complex coordination under executive leadership is performed by (a) superior executives, (b) staff groups, and (c) cross-coordination by subordinate personnel. Thus, in the second stage of growth one would expect to find a minimum number of staffs and committees, while as the third stage is approached one should find the more efficient use of committees and staffs to coordinate thought and action in the organization. Coordination is also a major responsibility of middle management personnel.23

23 According to the authors of one historical study of American business, the primary function of the middle-managers, whom they call "locum-tenens," is coordination. This leaves administrative management free to specialize
e) *The short view versus the long view.* The entrepreneur deals specifically with day to day problems that occur and thinks of the future only in terms of some optimistic personal goal. The executive leader, on the other hand, will systematically plan, organize, and control the relationship of the present company position with its future short run, intermediate, and long run positions. An interesting symptom of this phenomenon is the absence of written plans and records during the years preceding and immediately following the take-off. Economists have often complained of this condition when they wished to study the trends in national product. The same appears to be true in individual businesses. If it were not for the requirements by the government, few small businesses would have even the sketchy financial records that they now maintain.

f) *Single function versus multi-function.* The entrepreneur builds his initial growth mainly upon one function, generally sales or production. As the organization approaches maturity, however, the firm must develop strengths in its other functions as well. The executive leader thus cannot be simply an expert in one technical

function. Rather, he possesses knowledge of the techniques of general administrative management, of the technical functions with which he comes in contact, and of the peculiarities of his particular company compared with others.

g) Oral rule versus written rule. When one compares the communication media used by the entrepreneur with those of the executive leader it is strikingly apparent that the former relies on the spoken word while the latter puts things in writing. While it may be argued that the extent of formality in communication is a function of the complexity of the organization, this is not the complete answer. Multi-million dollar corporations have been led by entrepreneurs with a minimum of written records, while mature organizations with sales in the thousands reach maturity because of written objectives and policies, careful organization planning, written procedures, and detailed controls.

h) Heterogeneous versus homogeneous employee group. The relationship between the leader and his followers differs under entrepreneurship and executive leadership. Under the former the employees are likely to be of vastly differing temperaments and personality. They are unified by the charisma of the entrepreneur and the dynamics of the situation. In the more stable environment of the executive
leader, by contrast, the subordinate management or operative levels have more similar characteristics. This similarity results in part from the processes of selection and from indoctrination with the company philosophy.

Arch Patton has provided a useful example of what happens when the importance of such homogeneity is disregarded:

A bank recruited 20 top graduates from several business schools a few years ago. These men were outstanding academically, and psychological tests indicated they were go-getters as well. Within 18 months, all but 2 had left the bank. A checkup indicated that these men did not leave because they were dissatisfied with their salaries, but rather because they found the lack of individual responsibility devastating. The bank had committed the cardinal recruiting sin of attracting men whose competitive characteristics did not happen to be compatible with the industry environment.

The implication from the above example is that there were apparently certain characteristics which were essential for successful performance in the bank environment. More will be said about the matter of conformity in the last section of this chapter.

24 "In such a structure, then, the top team is an easily identifiable group, and it is recognizable by what it does -- by its functions and activities -- rather than by the personality traits of its members." Ibid., p. 13.

Some Examples of Leadership in Growth

Some of the interviews with leaders of the companies in the present study provided interesting illustrations of the type some leaders just discussed. As might be expected, few real leaders completely match the characteristics of the stereotypes described. The unimaginative leader, the innovator, the entrepreneur, and the executive leader "are ideal types with which the generic figures of reality must be compared, if analysis of reality is desired. Of course, while a theoretical model must be clear-cut to serve as a useful tool for the analysis of reality, reality itself is never precise."26

The following are some examples of the types of leadership which have been described. Some examples are drawn from interviews made in the present study, some are from other sources.

a) Richard Arkright: A non-innovating entrepreneur. It is interesting to speculate about how many entrepreneurs have been given the credit for inventing the particular innovation which they exploited. Often we would find, as Hoffer has said, that there has been a "man of words" who was the innovator of some improvement to mankind, but

26Chandler and Redlich, op. cit., p. 21.
who lacked the characteristic daring and courage to grasp the idea and promote it. The following is a classic example.

It appears that Richard Arkwright, who is credited with the invention and introduction of the "water frame," was in truth a promoter of doubtful character who stole more innovations than he invented. The real inventor of the spinning machine which "gave England the power of cotton" was a man named Thomas Highs of Lancashire who later contested Arkwright's patent of 1775.

Highs has been described by one historian as a man who "belonged to that class of born inventors whose type we are familiar with. He was a simple uneducated mechanic, working by instinct, at home only in his workshop, and knowing nothing of business. He several times tried to set up a spinning machine on his own account, but he always came to grief for lack of capital and business ability. Above all, he lacked the strenuous will to make a fortune which gave Arkwright his resolution and his power."

Arkwright, on the other hand, was trained as a barber and a wig-maker. He left the first trade for the trade of a hair-dealer when his second marriage netted him a wealthy wife. The same historian has described him as one who was "anxious to better himself, he had fertile brains for devising means of rising in the world and he knew how to drive a good bargain, the sort of diplomacy in which he had been trained being akin to that of the peddler or the horse dealer."

He had, as it happens, been aided in his "invention" of the water frame by an earlier assistant of Highs, John Kay. He built his first machine in 1768, taking out a patent a year later. In 1775 he took out a second patent on a number of vaguely described improvements, which later turned out to be adapted from the inventions of others. Through the promotion and development of his spinning equipment in his own and other factories he became rich and famous. His patent
rights were lost in 1781 when he was unable to defend his own inventive ability, were regained in 1785, and then lost finally the same year.

In spite of this loss he continued his financial success and was even knighted in 1786. When he died in 1792, Sir Richard Arkwright left an inheritance of half a million pounds.

While he was no innovator, he was certainly an entrepreneur. His was a major contribution to England's industrial revolution. "He was the first who knew how to make something out of other men's inventions, and who built them into an industrial system. In order to raise the necessary capital for his undertakings, in order to form and dissolve those partnerships which he used successively as instruments with which to make his fortune, he must have displayed remarkable business ability, together with a curious mixture of cleverness, perseverance, and daring."27

b) Shift from entrepreneurship to executive leadership.

The leader of Company A is an excellent example of an entrepreneur who has strongly influenced his subordinates with his personality but who has enough foresight to realize the importance of sound management and organization. His leadership has gradually changed from a loose and very democratic form to a more formal and better organized arrangement. His remarks on his own leadership may be summarized as follows:

I started this business to sell a new type of control equipment that had never been introduced industrially. We have continued to succeed

because of the hard work and dedication of our people.

During the early years I maintained day to day contact with everyone in the organization. Later we introduced lines of responsibility and authority on paper, but we were never very effective in following those lines. The pressures of the moment were too much for any great degree of formality. We had to make changes overnight.

As the organization has become more mature I have given my managers more responsibility and authority. While earlier I had talked to every person before they made a decision, now I rely on the manager to make his own decision within policy. We are too large to be a one-man organization anymore.

What does it take to make a business a success? It takes an idea, people, and money; most importantly the people. It takes someone who is young, with little to lose, with ambition, with faith that he can overcome any difficulty. It takes naivety, not knowing all of the problems involved. It takes someone who can bring all of the forces for business success together.

c) Failure to introduce executive leadership. The leader in Company D is of the entrepreneurial type. Unlike the leader in the previous example, he was unable to meet the demands of executive leadership that were placed upon him with growth and, consequently, led the business into its ultimate collapse. The following summary of his remarks on leadership is revealing.

My business succeeded because it emphasized sales and sales promotion. We specialized in a unique market area and then promoted it. I guess that I still manage the business the way I did when it started except that I'm colder now. I don't really have my heart in it anymore. I have never
thought of the business in the long term sense and I'd like to get out of it if there was someone to sell it to.

I got into the business to make money. I never would have done it if there hadn't been a possibility of a great reward. I don't think that the average man could do what I did. I know of two others that tried it and fell on their faces. You have to be able to do too many things and you have to have the drive. Once things got rolling I sort of sat in the middle and pulled the strings.

People have done what I wanted them to do because I have always treated them well. We are on a first name basis; I loan them money; we play golf together. I have always looked for people that didn't want to work just an eight-hour day. I want people who will prove themselves without thinking of money.

Things got out of hand by 1956. Sales were high but you lose a lot of money when the business gets sloppy. It was a discouraging thing. We just didn't have procedures or any kind of long-range plan. We couldn't even go back to one town where we sent six different music teachers in one year.

d) The development of executive leadership. When a shift from entrepreneurial to executive leadership takes place without previous preparation it takes the organization some time to adapt to the new demands. The following is an example of some of the problems.

When Mr. Shelton, the founder of the business, retired his son-in-law, Mr. Leibe, became president. The main advantage of the earlier organization had been Mr. Shelton's ability to design machinery.

Pressed by administrative problems and details, Mr. Leibe hired a chief engineer to design machinery at customer request. He made his
senior foreman, Mr. Germer, works manager. Leibe commented that it took three years to make Germer into a capable decision-making executive. "Mr. Germer had worked so long under Mr. Shelton's heavy hand that at first he was unable to make up his mind on any point, no matter how minor, without getting someone else's approval."

As the business expanded, it added a purchasing agent and then a treasurer, each of whom acquired a few assistants. Gradually Leib spent less time on operating decisions, more on plans for the future. Mr. Leibe changed from a "working" to a "managing" president.28

Leadership and Morale

Morale is the mental condition of individuals or organizations that determines their attitudes. It ranges from good to poor and may be measured for both groups and individuals within the group. The kind of morale in an organization is, to a large extent, a product of its leadership and the stage of growth which the organization has achieved.

The nature of the leadership environment, as it is shaped by the process of growth, is a vital factor in determining just how good morale will be achieved. The leader may be able to achieve high morale with a heterogeneous group at one stage of growth, yet require a homogeneous

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28Summarized from Christensen, op. cit., pp. 159-60.
group in another. Research has shown three common group situations:

a) Members of the group will interact frequently and yet dislike one another "(e.g., situations where interaction is imposed by society as in the case of siblings or by organizations as in the case of work crews)."

b) Members of the group will have high *esprit de corps* without interacting frequently "(e.g., scholars, close friends, or lovers apart)."

c) Members of the group have high morale and interact frequently and yet dislike one another personally. 29

Disregarding the first situation which has little application to the present problem of growth, the second and third are of considerable importance in understanding how good morale may be developed or maintained in the growing firm. The third situation, with high morale, close interaction, yet differing personalities describes the common situation in the dynamic stage of growth. Here group cohesion is high in spite of the fact that members have different personalities, and varied personal

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objectives. In this dynamic stage members of the group conform for many reasons.

They have many varied motives. They may even represent many different personality types. The important thing is they conform to group norms. In fact the members may hate one another roundly as they carefully conform to common norms and ideologies.30

The second situation in which group members also have high morale, have a high degree of rapport, yet do not interact frequently is largely descriptive of the organization in the third stage of growth. By the time it reaches maturity, the firm is a complex organization with so many levels and functions that close personal interaction is impossible. Obviously the leadership of the complex organization cannot rely on emotional appeals; instead, the complex organization must build its morale-development program upon a rational conformity with a systematic philosophy of management.

Both of these situations require elaboration in detail in order to be useful for planning morale development in a growing organization. Before turning to this discussion one minor point deserves attention: The common tendency for social scientists to refer to "small-groups" and "large-groups" would be much more accurate and descriptive if cast in terms of the growth situation. The small group is

30Ibid., p. 49.
actually a reference to the dynamic stage of growth and much more accurately measured by the change involved in the group situation than it is by the number of persons in the group. The firms in this study corresponded to the usual characteristics of the small group when their employment at the end of the stage varies from about 35 to as many as 400 employees. The large group, on the other hand, is much more descriptive of the firm which is entering or has achieved maturity. The term is actually more descriptive of organizational size and complexity than mere number of participants. In the following discussion the group research has been cast in these growth terms.

1. Morale in the second stage. Morale in the second stage of growth is high, in spite of the diverse desires and personalities of its participants, because of the nature of the situation. The organization is actually a collection of people with varied interests who are quite willing to participate in the achievement of the leader's goals. They cooperate in order to overcome the tension of the situation, tension introduced by the desire for some future goal and, perhaps, by the presence of some external threat.\footnote{For an implicit or explicit statement of this concept see Chester Barnard, Functions of the Executive, p. 19; W. W. Rostow, The Stages of Economic Growth, p. 28; George Simmel, "The Number of Members as Determining the Sociological Form of Groups," The American Journal of Sociology, Vol. VIII, pp. 9-10.}
To elaborate: In periods of revolution both ideologies from the left and those from the right combine to seek a common objective. Morale is high as they willingly cooperate in the achievement of their goal. They follow the leadership of the man who has the legitimate right to lead. Similarly, as has already been discussed, the entrepreneur gains his particular legitimate powers through the revolutionary changes introduced by exploiting an innovation. The participants all move willingly to reach the optimistic goals of the entrepreneur. One entrepreneur explained the high morale in the early period of growth by saying, "busy people are happy people; when things are hectic on the job there isn't time to worry about personal problems."

Said another: "During those years everyone felt young and ambitious."

The same kind of group solidarity can also be introduced by external threat. Thus, the role of dictator was originally developed by the Romans as a temporary power to ward off external aggression. Similarly, when there is strong opposition to the organization's goals by some outside agency, then the leadership is given great power and the morale of the group is insured so long as the threat is eminent. Employees are united by dangerous external competition that threatens their continued existence. When no other suitable alternative presents itself, the
entrepreneur may manufacture some kind of threat, just as the Cuban dictator Castro has manufactured stories of impending United States invasion.

The absence of a rational organization in the second stage also contributed to the morale of the group. Since the group is so dependent upon one man it must have frequent contact with his face-to-face leadership. The absence of a formal hierarchy is illustrated by the fact that entrepreneurs are generally called by their first names by associates and subordinates. Though there are some notable exceptions, the entrepreneur generally tries to develop a communal feeling among himself and the group. It was typical for the entrepreneurs in the firms studied to be called by their first names. Only after lines of authority became more formal did the practice change.

The danger in not preparing for this formality was highlighted in Company C where the entrepreneur said, "Morale has always been high in our company because I am nice to my employees and they can see me whenever they want to. When I got too busy to keep in touch with them last year, though, morale dropped and we had labor trouble." Similarly, the president of Company B reported that the manager of his paint shop came to him and actually cried because the boss had not bothered to go up and see how things were going for some time.
Thus the apparent paradox between the normal human tendency to resist change and the high morale of the second stage is explained by the presence of the entrepreneur and the particular disequilibrium of the situation. Several of the following conditions are generally found: (a) The participants are made discontent with present conditions through optimistic promises of the future. (b) They come to believe that they actually have the power to change their environment since the take-off and disequilibrium are evidence of possible change. (c) They have faith in the future, instilled by the charisma of their leader. (d) And, they are ignorant of the difficulties involved in their undertaking.

2. Morale in the third stage. The characteristics which make for high morale during the period of turbulence in the second stage of growth will eventually cause low morale if continued as the organization matures. Some goals will be achieved. Employees will come to realize that many cannot ever be achieved. The close personal relationship with the entrepreneur is lost as organizational levels are established and lines of communication lengthened.

Once the firm becomes a complex organization directed by a rational, legal system of authority, then morale may be achieved only through the development of a high degree of rapport among the participants. This is developed,
first, by the development of a sound company philosophy, including the primary service objective, to serve as an intermediate system of common purpose. It is developed, secondly, by the introduction into the organization of persons capable of some degree of conformity with organizational aims and beliefs.

The prejudice of Whyte and Riesman notwithstanding, it is sheer folly to think that high morale in a complex system of operation can exist without a rather high degree of conformity on the part of organization members. The necessary conformity with organization aims is aided by the organization philosophy in two ways: (a) it serves as a guide in selection and (b) it is the basis for indoctrination.

The philosophy aids in selection by providing a criteria of beliefs by which new organization members are screened. Sears and Roebuck has been criticized for its use of a rather restrictive "executive profile" for selection purposes, yet this set of standards for their executives and the other parts of the Sears philosophy may be the means by which that complex organization retains its

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32Both men criticize the tendency to conform on the part of executives in business organizations, calling this tendency the "social ethic" and "other-directedness." William F. Whyte, The Organization Man (New York: Doubleday and Co., 1956); David Riesman et al., The Lonely Crowd.
high level of morale. Obviously, the development of teamwork would be difficult if the participants had no common interests, functioning as strong individualists.

Further, the organization cannot expect to meet the individual objectives of its members, hence develop high morale, unless they are inculcated with the doctrines and beliefs of the organizational system.

In other words, management should state its philosophy frankly, if it has one. Otherwise, the executive should forget the problem of morale development until it formulates an acceptable philosophy. There can be no meeting of minds, and therefore no integration of interests, until the employees are able to understand why executives think the way they do.

And, obviously, employees cannot be imbued with the executive philosophy unless the executives themselves have a common area of belief.

Top management in the organization must accept the responsibility for indoctrinating the members of the organization with the company philosophy. It must provide a body of doctrine upon which to build a community of interests. Otherwise it must be prepared to face the morale consequences of poor communication, conflicting interests uncoordinated action, and inefficient decentralization.

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33 Whyte, op. cit., p. 214.
34 Davis, op. cit., p. 587.
Reference was made earlier to the implied criticism by Chris Argyris and others that the objectives of a complex business organization and those of the individuals within the systems were in conflict. Yet no claim has ever been made that they are expected to be the same. Morale is not improved by trying to make employees believe that, instead of better pay, what they really want is to serve the customer. Instead, morale is improved by showing the employee that the best way to improve his own pay is to help the organization give good customer service. The objective is not an identity of interests, it is an integration of interests. 35

Summary

1. At least four different types of leadership may be identified in the growth of a firm: the unimaginative small business leader, the innovator, the entrepreneur, and the executive leader.

a) The unimaginative small business leader is bound by tradition. He feels that no one can tell him how to run his business, since things have to be learned by "experience." The firm functions like a family, rather than a rational organization, with the leader assigning

35"The basis of the morale-building process is, accordingly, the process of integrating interests." Ibid., p. 547.
roles by custom rather than by job performance. Change is unwelcome.

b) The innovator is one who develops a new idea and adapts it to business use. He may also be the inventor of the idea or he may be the entrepreneur. He has the creative insight to recognize the need for a new good, method of production, market, source of supply, or organization of industry. In reality, the personification of the innovator is often a fiction, since several persons generally contribute to what might more accurately be called the "process of innovation."

c) The entrepreneur is a promoter who exploits the advantage of an innovation which he has introduced himself or simply recognized as important. He is typically egocentric, ambitious, and against tradition. He introduced the disequilibrium into the organization from which the firm achieves its take-off. He typically represents a hero-figure to his subordinates. The stamp of his personality is upon them, and they tend to identify with him personally. To him uncertainty and risk add interest and zest to action. The entrepreneur is an artist, who, unaware of the difficulties involved in his action, leads loyal subordinates in the tactics of daily operation. As the organization matures, however, he must develop the
skills of executive leadership or be replaced by such a person, lest the organization fail.

d) The executive leader is distinguished by the fact that he performs the management process. That is, he is able to scientifically plan, organize, and control the operations of the firm, besides performing a leadership role as well. By introducing sound management once the initial advantages of the growth stage are past, the firm can avoid a tendency to decreasing returns to scale. Unlike the entrepreneur, the executive leader typically deals with future strategy, relying on an impersonal, legal system of authority. He assigns subordinates to particular areas of responsibility and authority organized in a rational manner. He introduces the necessary coordination to insure continued efficient operation as the firm grows, and he sees that by the time the firm reaches maturity it has developed strength in all its functions and has developed written rules of action. He functions as a professional leader in a complex organization system, eliminating uncertainty through scientific business operation.

2. Leaders achieve good morale quite differently in the second and third stages of growth. Research, authoritative opinion, and the evidence of the present study indicate that the dynamic, unstructured group
achieves high morale through the close interaction of the group members as they seek to overcome the tension of the situation. This tension is introduced by the entrepreneur as the desire for some optimistic future goals, or as a result of some external threat. The complex organization developed as the firm moves to maturity requires a different kind of morale maintenance, however. While the dynamic growth of the second stage allowed the union of a heterogeneous group, the achievement of morale in the complex organization requires some degree of conformity among the participants. This conformity is created by selecting individuals who meet the criteria of an organizational philosophy, and by indoctrinating the members of the firm with the same philosophy. In this manner the maturing organization achieves the necessary integration of interests for good morale.
CHAPTER VII
GROWTH OF THE ORGANIZATION STRUCTURE

The Relationship of Growth to Size, Shape, and Function

This chapter will be concerned with the effects of growth upon the organization structure of the firm. It will be seen how the growth process creates or is increasingly affected by certain factors which, in turn, determine the size, shape, and function of the structure; the condition is analogous to the growth process of an organism whose size, shape, and function are determined by such factors as gravity, mass, stage of growth, etc.

The size, shape, and function of an organization structure appear to be dependent upon nine major growth variables: (a) the number of employees in the firm, (b) the point of evolution on the growth cycle, (c) the number of growth cycles present in a firm at one time, (d) the type of functions performed and by whom, (e) the type of organizational units involved, i.e., departmental or federal, (f) the rate and importance of technological change in the firm, (g) the degree of conscious formal organization, (h) the public philosophy toward business
purpose and organization, e.g., centralization versus decentralization, and (i) the pressure of external forces upon the firm, e.g., competition in the industry or local business environment. All of these factors are interrelated. As far as possible, however, the factors will be dealt with separately.

The Size of the Structure

While the size of an organization structure is difficult to measure, it is useful to think of a firm having dimensions such as volume, surface, and weight, just as a living organism. To properly measure the external dimensions and volume of the structure one would have to consider the total of functions, physical factors, and personnel of which the structure is constructed. Since this is impractical, the most common alternative is to use one of the measures already referred to such as output, assets, or number of personnel employed. In the discussion which follows, the number of personnel is taken to represent the organizational "mass" by which its size is measured. It should be recognized, however, that reference to size in terms of total employment is considered an artificial and convenient measure, not a tautology.

The clarification of the role of size at this point is useful for two reasons. First, it serves to emphasize the fact that the number of employees is not the only reason
for the development of certain kinds of structure. Secondly, the introduction of the factor at this point is useful for it allows an explanation of a related concept which will also be referred to in other parts of the chapter: the square-cube law. This is a simple geometric principle that as volume increased by a cubic function, the surface enclosing it increases only by a square function, increasing as it does only in two dimensions.\(^1\) It is the application of this law that explains why, even though a firm may achieve a take-off without a formal structure, it cannot continue to grow and achieve maturity without a conscious organization on the part of management.\(^2\)

If the organization is considered analogous to a biological organism -- and there is strong support for this analogy -- then the effects of the square-cube law on the shape of the organization may be considered. For example, if a man is increased ten times in size, then the diameter of his leg-bone would increase ten times, the surface of the man would increase a hundred times (the square function), and the mass would increase one thousand times (the


cube function). Thus, as D'Arcy Thompson has pointed out, in the childrens' story of Jack the Giant Killer, Jack had nothing to fear. If the Giant was ten times as large as a man and of the same proportions as a man, then the mass of his body upon the proportionately smaller leg bones would have caused the legs to break and the Giant to fall helpless to the ground. ³

One implication from this law is that the shape of an organism must change as it grows in size. Other things being equal, there should be a particular shape of an organization that best serves a particular size. Just as the increase in the size of a horse might cause it to look more like an elephant, so the increase in the size of an organization should materially alter its structure.

Similarly, the growth of a firm should alter the functions which it performs. For one thing, the increased mass would require a stronger supporting structure. This supporting structure may be thought of as the communication, coordination, organization, and other facilitating services that devolve and evolve as the firm grows. For

³Haire, Modern Organization Theory, p. 273. Haire does not discuss the interrelationship between shape and function, nor the part played by the surface of an organism to support its mass. In the first condition, a change in shape might be expected to reduce the rate of increase in supportive functions. In the second case a rigid surface in an organism can considerably reduce the need for internal support.
example, a small firm needs less specificity in its definition of organization structure and job relationships than does a large one. Size, therefore, is one reason for the establishment of an organization planning staff which provides these secondary service values to the firm. Further, the large firm is more likely to need a legal staff than a small firm.

It is not sufficient to conceive of growth as a continued division of the same functions. If this were true there would be little need for administrative management or for staff support. In fact, the organizational relationships increase at an increasing rate, requiring new types of leadership support and demanding certain secondary values which were not present in earlier points of growth. Just as the living organism evolves different functions, so the firm develops new means for continuing successful operation through the devolution and evolution of functions.  

In dealing with a biological analogy to the firm one must be careful to differentiate between a single life-cycle and the evolution of several life-cycles over time. Thus the microscopic worm has a life-cycle, the fish has a life-cycle and the human being has a life-cycle. Each of

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4It is surprising that few management authorities have seen fit to recognize this devolution and evolution of business functions. See Davis, *op. cit.*, pp. 217-19.
these alters its structure and functions during its lifetime. For example, reproductive functions may be developed in later life. Taken together, the worm, fish, and man also represent a long-run evolutionary process. For example, the microscopic worm is so small that it can take in oxygen directly through its skin. The fish, however, has a much greater mass in relation to its external surface, so that because of the square-cube law it is unable to take in sufficient oxygen as did the worm. Instead, it must develop a new system of gills to increase the surface for oxygen intake relative to the mass. Finally, man, being much larger than the fish, could not receive sufficient oxygen from the gill surface and so has developed a mass of spongy tissue, the lungs, and a complex circulatory system for distributing oxygen to the body.

In much the same fashion, the single life-cycle of a firm will evidence the development of functions which permit its continued successful existence. It has already been described how various organic functions are strengthened after growth begins based upon one of these. Then, supportive functions like accounting, personnel, purchasing, or engineering are added. While some of these are a product

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5 Mason Haire has discussed this relationship between functions and size, but has not stressed the difference between the single life-cycle and the evolutionary process of several life-cycles. *Op. cit.*, p. 274.
of size, others, like the development of general administrative management, are a product of growth as well.

Also, in the same fashion, if one were to consider a series of growth cycles found in a firm over a long period of time, it might be expected that more and more emphasis would be placed upon functions resulting from size. Coordination, for example, might require considerably more staff aid in the third stage of a firm with 5,000 employees than it would in the same stage of a 500 employee firm.

The reason for differentiating between the single life-cycle and the longer evolution of several life-cycles will become clear later in this chapter when the rate of growth of staff is discussed. Obviously, the growing firm must change in shape and must evolve primary and secondary staff functions. We shall now discuss in more detail the changing shape of the structure as it grows.

The Shape of the Structure

The growing firm develops three fairly distinct types of structure as it passes through each of its growth stages. Besides size, these types are determined importantly by the nature of the growth process itself and by the degree of conscious organization involved. In the first stage it contains a loose organization of participants held together in an arrangement dictated by tradition. In the second, the structure represents a field of force around the
entrepreneur. The structure becomes widened as new persons are added to the firm. By the time the third stage is reached the firm will have begun to decentralize, so that the structure becomes longer rather than wider.  

1. The unstructured small business. The traditional authority of the first stage was described earlier. In a traditional system people within the organization are assigned their particular functions by precedent rather than through any conscious effort to organize on the part of an entrepreneur or executive leader. Leadership is legitimatized by being the eldest, the inheritor of title, or the owner of property. Leadership represents an elite which exercises its prerogatives by interpreting what it feels is right, not upon what law or principle say is best.

The small business leader will generally add employees on a basis of becoming "too busy" and "needing someone" rather than to fill a particular job. New employees may be assigned to a general functional area like sales or production but the arrangement is rather loose. Top levels in the firm will frequently be held by family or favorites of the leader, rather than by executives selected on criteria of skill or competence.

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6 The terms "longer" and "wider" are used here to refer to the dimensions on a common vertical organization chart.
Contrasted with the mature firm in the third stage, the following characteristics are absent in the organization structure of the small business in the first stage:

(a) a clearly defined sphere of competence subject to impersonal rules, (b) a rational ordering of relations to superiority and inferiority, (c) a regular system of appointment and promotion on the basis of free contract, (d) technical training as a regular requirement, (e) fixed salaries, in the type case paid in money.7

On the other hand, in the medieval European town which corresponded in terms of national growth to the firm in the first stage of business growth, the following characteristics were found: (a) legitimacy of leadership chiefly based upon land ownership; (b) performance of only the most important functions not otherwise carried out in the family unit, i.e., miller, blacksmith, brewer; (c) the absence of rules of law or contract; (d) the grouping together and participation for mutual protection and continued subsistence; (e) the belief that only sufficient income to meet one's needs was moral, excess profit being immoral; (f) little to no communication with other medieval towns.

The shape of the organization structure in the traditional small business has few dominant tendencies. A loose definition of major functions and a separation of

certain administrative tasks may be expected, but the rational ordering of work and structure are seldom present. Frequently there are so few personnel in the small firm that they can report conveniently to the leader of the firm. In those fewer cases where a larger firm has changed in character to a traditional form, however, there does not seem to be any particular restriction upon the development of organization levels. Such levels were found, for example, in the feudal systems of Europe in the Middle Ages where they represented levels of power or protection rather than a systematic grouping of authority.\[^8\]

Such staff functions as are performed will normally be performed by line employees as a part of their regular jobs. The tradition-bound organization generally follows routine methods established by trial and error and sustained by precedent. As has been emphasized, a traditional system tends to resist change; it is more concerned with continuing past performance than with planning and achieving future goals. As a result of this philosophy, the use of technical and coordinative staffs to plan and control operations is limited. Instead, the firm tends to utilize emergency measures to deal with visible, immediate problems. For example, the owner-manager may get together with an

experienced mechanic to work out product improvements after customer complaints show them to be needed. It is unlikely, however, that he would be willing to establish a separate staff function for product improvement and development.

It is true that organization size must play a part in determining the specialization of function, including staff. Yet the traditional philosophy is another determining factor. For example, in tradition-bound firms a personnel staff is likely to be weak or absent since the leadership will not have defined job and worker requirements. An engineering staff is unlikely because there is little emphasis on product improvement. A purchasing staff is seldom utilized because there is no concept of purchasing economies and because it is expected that "next year's business will be about like this year's." Only the use of a part-time auditor to meet tax requirements and secretarial help appear to be the generally acceptable staff support in the traditional small business.

In sum, the traditional small business in the first stage of growth appears to have an organization structure built more on happenstance than upon any dominant force. Leadership and supervisory levels are defined by whatever criteria of legitimacy are recognized -- usually ownership in the case of firms -- and staff organization is at a minimum.
2. **Stage II: The flat structure.** The organization structure of the firm in the second stage of growth has certain dominant characteristics. Since the entrepreneur exerts such an important influence in this stage upon the growth and success of the firm, the growth of the structure is in a manner which prolongs this influence. This is done by adding new subordinates, as far as possible, to the span of control of the entrepreneur rather than to subordinate organization levels. By organizing in this manner the ability to cast the image of the entrepreneur upon his subordinates is facilitated and he is able to manipulate the group to the best advantage.

There is also a general absence of clearly defined jobs in the organization structure. The attitude of the entrepreneur seems to be "if a job needs to be done, then someone should recognize the fact and do it." While there will naturally be areas of specialized technical competence, there is none of the rational ordering of responsibility and authority that is to be found in the mature organization. This absence of job standards leads to some peculiar problems, for it prevents sound means by which performance may be judged. As a result, the entrepreneur may use personal bias as a criteria, feeling that one follower is "good" or another "bad" because of weak or personal evidence. For example, an employee lacking any knowledge of
the exact requirements of his job, may be found inactive by the entrepreneur; this inactivity may be interpreted as a failure on the follower's part, when the entrepreneur is actually responsible simply because the subordinate was unaware of further duties.

The nature of the structure in this stage has been succinctly described by Max Weber:

The corporate group which is subject to charismatic authority is based on an emotional form of communal relationship. . . . There is no hierarchy; the leader merely intervenes in general or in individual cases when he considers the members of his staff inadequate to a task with which they have been entrusted. There is no such thing as a definite sphere of authority and of competence, and no appropriation of official powers on the basis of social privileges. There may, however, be territorial or functional limits to charismatic powers and to the individual's "mission."9

The shape of the structure and the dominance of the entrepreneur both help to explain why he functions importantly as a central coordinator. The only staff aid in the organization, especially during the first half of the growth stage, is likely to be highly technical or housekeeping functions. The use of coordinative or control staffs is generally absent, so that coordination of activities must come from leadership by executives or cross-coordination by subordinates. Much coordination actually

does occur between organization members since the group is seldom large enough to block cross-coordination and there is a great deal of natural interaction in the second stage anyway. Reliance on cross-coordination alone, however, would be insufficient.

The reason for the importance of executive coordination may be illustrated: Where, for example, eight subordinates wish to coordinate with each other, the number of coordinative contacts is 56. With the addition of a central coordinator, however, the number of contacts is reduced to 8.\(^10\) As long as the span of control of the entrepreneur is within his capacity it is more efficient for him to coordinate activities than it would be for all members to operate by cross-coordination alone. As the entrepreneur's span widens, however, an increasing coordinative burden is placed upon him which must be supplemented somehow. The use of entrepreneurial coordination makes for flexibility and efficiency when the organization is small. As it grows what was earlier an

\(^{10}\)If \(N_r\) equals the number of cross-coordination contacts, \(N_c\) equals the number of executive-coordinated contacts, and \(n\) equals the number of subordinates, then \(N_r = n(n-1)\) and \(N_c = n\). The difference is exaggerated, of course, for an actual practice even a free-reign manager could coordinate some matters while a manager-coordinated group might be expected to perform some cross-coordinated. The principle is important, however, for it emphasizes the importance of effective group leadership. Dale has also discussed these relationships, describing the managerial
advantage may become a disadvantage if coordination breaks down because the entrepreneur can no longer handle the burden. If this happens the result may be inefficiency and frustration on the part of subordinates. To avoid this problem the executive will normally turn to the use of staff.

From what has been said about entrepreneurial coordination it may be seen that the firm resembles a living organism in its relationship to its environment. The larger the animal, the more difficulty it has adapting to sudden changes in its environment. Similarly, the larger the firm the more difficulty it has in making similar changes. Thus, the size and shape of the small, growing firm gives it competitive advantage in being able to exploit opportunities before the larger firm can take advantage of them. If the analogy is correct, the larger, more mature organization which is less able to cope with rapid changes in its environment will either try to anticipate such changes through planning or else will try

to control the change of the environment itself.\textsuperscript{11} It should be recalled again that size is not necessarily measured by number of employees, nor growth stage either. The relationship that exists between the latter and the ease of adapting to environment is illustrated in the following examples. In these cases adaption to environment may be taken to mean the speed with which the firm changes to meet or make innovations.

The effect of the small innovative firm upon the larger, mature organization is seen in the remark made by the treasurer of a large long-line moving equipment firm during an interview with the writer. He said, "We have a wide variety of products that help us retain our strength. Every now and then some small competitor takes a bite out of the sales of one of our products by coming out with an important improvement. Then we finally follow with a similar improvement and the sales come back."

Contrasted with this firm is the Superior Separator Company, a successful short-line farm equipment manufacturer. This firm makes a practice of inventing and exploiting innovations, relying primarily on the

\textsuperscript{11}Large firms which have continued growth have more often planned for and taken advantage of new developments in markets and technology than have their more stable counterparts. See Robert B. Young, "Keys to Corporate Growth," \textit{Harvard Business Review}, Vol. XXXIX, No. 6 (Nov.-Dec., 1961), p. 51.
second stage of growth of a series of inventions for its strength. The president of the firm once described his company's operations to the writer this way: "The way that we compete with the full-line companies is to research the product and introduce it into the market, riding its acceptance curve to the point where the full-line manufacturers see sufficient demand to enter the market. Once that happens our easy days are over and we have to start competing."

Thus, as long as the firm has not grown to a size that prevents centralized entrepreneurial leadership, the shape of the organization can be a distinct advantage. It permits the firm to be fast on its feet, introducing or meeting changes rapidly. The more mature organization, on the other hand, is less able to deal with rapid changes.12

An important factor in the development of a fast-moving organization structure in the second stage of growth is the spans of control to be found. By span of control is meant the number of subordinates reporting to a single

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12 This proposition seems warranted in view of the observable conditions in the firms presently studied, in the various histories of individual firms in the literature and in the conclusions from certain industry studies. Gertrude Schroeder has said for example: "There is considerable evidence ... to suggest that the smaller steel companies have been the real pioneers in the [steel] industry's technical progress, and that the largest has been somewhat slow to inaugurate new methods," The Growth of Major Steel Companies, p. 112. See also Chapter IX.
leader, including the entrepreneur. As the organization grows under the direction of the entrepreneur and new subordinates are added, there is a noticeable tendency for new personnel to report to the entrepreneur. Because of this tendency the span of control of the entrepreneur may be expected to grow beyond that normally held to be acceptable. If the number of employees in the organization clearly prevents everyone from reporting to the entrepreneur then a few levels may exist with new personnel reporting to one of these levels. Even in the latter case, however, most persons have frequent contact with the entrepreneur and lines of authority are seldom followed completely.

With this tendency to restrict levels and to add to the people reporting to the top leadership, spans of control become wider with growth. This trend continues unchecked until the point when the organization begins to develop sound executive leadership with its consequent move to decentralization. In other words, the move to

\[\text{Limited research on the subject tends to confirm this conclusion. Bruce DeSpelder has found, for example, that among auto parts manufacturers the ratio of top management to direct employment tends to "drop very rapidly as companies grow to the 100 direct-employee level." After that point they tend to level out, though, it may be argued that this is due to an averaging of several product bases rather than to the size of the firms alone. "Ratios of Staff to Line Personnel in the Automotive Parts Manufacturing Industry," a mimeographed summary of his Ph.D. dissertation, Wayne State University, 1959, p. 44.}\]
wider spans is an autonomous trend while any reorganization to decentralize and relate spans to proper levels must be induced.

The realization of this trend should help to clarify some of the confusion in the management literature surrounding the discussion of spans of control. One would expect to find that the spans of control would increase as the firm grows, as has been shown in some studies,\textsuperscript{14} but would be reduced or adjusted to proper levels once the firm felt the need for decentralization, an observable trend in all of the present firms studied. Furthermore, although studies have shown executive spans above the recommended level of 3 to 8 or 9, such studies may have been made of firms largely controlled by autonomous rather than induced -- and preferred -- forces. Where sound executive leadership is practiced, the preferred span should be found.\textsuperscript{15}

\textsuperscript{14}Haire, op. cit., p. 296. The fact that Alton W. Baker and Ralph C. Davis also found a declining proportion of top management executives to direct workers probably also reflects this trend. \textit{Ratios of Staff to Line Employees and Stages of Differentiation of Staff Functions}, Bureau of Business Research, The Ohio State University, Research Monograph Number 72, 1954, p. 50.

\textsuperscript{15}This was generally the case in a study by James H. Healey, who found that the chief executive in 445 firms employed a span of less than nine in 94 per cent of the cases. It also pointed out that the use of federal units (subsidiaries) and staff specialists can affect the span somewhat. \textit{Executive Coordination and Control}, The Ohio State University, Bureau of Business Research, 1956, chap. iv.
If the entrepreneur continues to increase his span beyond the point where he can effectively handle all of the details of leadership himself, then he may resort to the use of general staff assistants to extend his capacity. These assistant-to positions act as extensions of the chief executive, acting in his name on various matters. If he is unwilling or unable to increase his capacity or to delegate authority, then the entrepreneur can expect an ultimate collapse of his effectiveness.

The tendency for the entrepreneur's span to increase may be illustrated by reference to Company D. The firm had begun in 1945 with two employees and had grown rapidly after the introduction of the entrepreneur in 1950. By 1956 as shown in Figure 6, the firm had 37 employees, twenty-five of whom reported officially to the chief executive. By that time the entrepreneur found himself with high costs and low profits, even though sales were at an all time high. He lost the ability to control the firm, unable to deal with operative management effectively, and too busy to perform important administrative functions.

The entrepreneur was unwilling or unable to delegate. The result was the collapse of sales as he sought, first, to turn his attention to a new outside venture, and second, to allow the business to run itself. Only an accident saved the firm. The president had earlier established a
Fig. 6. Organization of Company D, 1956.
friend in the music business in the southern part of the state, allowing him to repay the capital loaned out of earnings. When faced with the loss of important salesmen during the crisis of 1956, the president offered to sell part of the large sales territory in the same manner to several of the salesmen. As a result, by 1960 he had four branch managers reporting to him, each of whom operated his division independently, except for certain policy questions settled by the president. Each of these men was purchasing his territory from the president out of earnings on a long term basis. During the reorganization, the president also turned the job of directing the teacher program over to the educational director and the branch managers. After this reorganization, shown in Figure 7, the firm recovered to a sales level at approximately half of its previous peak. The president now has sufficient time to devote to the growth stage of several enterprises outside the music business. Instead of twenty-five, he now has a span of thirteen, and a greatly reduced load of responsibility and authority.

The pattern of growth of spans of control that was just described and illustrated is also consistent with the needs of the growing organization regarding types of followers. It has already been pointed out that Stage Two contains a heterogeneous group of ambitious employees,
Fig. 7. Organization of Company D, 1960.
while maintaining good morale, yet Stage Three can only continue good morale by developing a homogeneous workforce. The pattern of span of control development contributes to this need.

Research has shown that narrow spans of control lead to closer supervision which, in turn, leads to some degree of employee dependence and subordination to leadership. Wide spans, on the other hand, are best for inducing employee independence. Thus, the aims of the leadership and followers in the second stage are supported by the shape of the organization structure in that stage. By tending to a flat structure with few levels the desire for independence by the group members is satisfied. The image of the entrepreneur is dominant enough to hold serious deviations in check, but participants in the organization are left to work with great freedom.

In the maturing organization approaching or entering Stage Three, on the other hand, the charisma of the entrepreneur must be replaced by sound scientific management and a rational company philosophy. At a cost of some degree of personal freedom on the part of subordinates, spans of control are narrowed and specific responsibility and authority is delegated to various organization levels.

It should be noted also that the same change takes place when lines of authority that were largely ignored by the entrepreneur, become firmed up. Levels that previously existed only "on paper" become fixed as the organization becomes more mature.

To summarize the growth in this stage, the organization structure tends to become wider, since spans of control are increased with the number of levels being restricted. During this increase in spans the entrepreneur acts as the chief coordinator, aided perhaps by a general staff assistant. This central coordination is a distinct advantage to the small company as long as it can be maintained efficiently, for it enables the firm to adapt quickly to changes in the environment. The wide spans also contribute to the needs of the followers in this stage for freedom of action, since wide spans tend to promote greater independence than narrow ones.

3. **Stage III: The decentralized structure.** By the time that the firm enters the third stage of growth it should have begun the development of scientific executive leadership and a rational organization structure. This change is necessitated for two reasons: first, the growth cycle will have reached a point at which the limited talents of the entrepreneur are insufficient. Face-to-face leadership and blind optimism are not enough; they must be
replaced with a hierarchy of capable executive leaders who can anticipate, accept, and handle risk rather than overlook it. Secondly, the number of people in the organization will have grown to the point that the haphazard organization built upon personal leadership by the entrepreneur is too weak. A carefully structured organization of line and staff units will have to replace the vague structure that preceded it.

The temporary organization of the entrepreneur, a personal reflection of his dominant role, is replaced by an impersonal organization structure, an efficient and lasting relationship between work, people, and materials. The latter is held together by a legal system of authority in which each member holds a specific set of duties and is rewarded for their satisfactory completion. Methods of operation are determined by a scientific consideration of the problem and are fixed in terms of basic principles of organizational behavior. Under these conditions personal loyalty is apt to be toward the system in general and a job in particular, rather than to a dominant top management figure, for continued domination by one man can hamper or destroy continued growth.
The characteristics of a rational organization structure developed for successful maturity may be summarized as follows:

1. The rational organization structure relates the work, people who do the work, and the workplace in a manner which permits effective performance of plans in the attainment of business objectives. It is built upon the work to be done, rather than upon personalities or traditional performance roles. Work functions are grouped into a hierarchy of organizational units on a basis of their greatest similarity and their level of authority.

   a) Each level in the hierarchy of organization units has its own impersonal organizational objectives which, in turn, contribute to the objective of the larger unit of which it is a part. For example, the company, the division, the department and the job unit each have an organizational objective that contributes to the objective of the next larger unit.

   b) Functional similarity is based upon the common relationship of functions to organic business functions, to process or related physical performance factors, to geographical area, to customer type, to product or service rendered, or to time of accomplishment.

2. The relationship described in (1) makes possible the recognition and utilization of vertical and horizontal divisions of the organization structure.

   a) The organization as a whole may be viewed as vertically divided into several major divisions, often based on organic function. For example, major divisions of the company may be sales, production, and finance.

   b) The organization as a whole may be viewed horizontally divided into divisions representing levels of responsibility and authority. Major horizontal divisions are
known as organization service levels. For example, one may find the headquarters, division, department, and sectional levels.

3. In addition to its contribution to an organizational objective, each unit or job also has operational objectives. These operational objectives are the particular responsibility for procedures which pass through the work unit. These functions are related in a complementary relationship.

4. The shape of the rational organization structure is determined by a compromise between the forces dictating effective spans of control and those dictating organization levels.

5. The specific objectives, responsibility, and authority of each job and organizational unit must be specified in a rational organization structure and systems of accountability provided to insure that these plans are carried out. These assigned duties are consistent with the rule of law which is imbibed in the organization's principles and policies.

6. The rational structure contains a group of top level administrative executives who are concerned with planning, organizing, and controlling broader and more far-reaching matters than operative managers. For example, administrative managers set company objectives, make company policy, and make long-range plans for future operations.

7. Organizational units in the rational organization structure are classified as line or staff. Line units are those which contribute directly to the creation of salable value, i.e., the primary service objective. Production and sales units are examples of such line units. Staff units are those which contribute indirectly to salable value, but directly to greater organization economy and effectiveness. Examples of staff units are purchasing, personnel, and maintenance units.

a) Staff units may be found in a larger line unit, as in the case of a market research staff in a marketing division.
b) Individual staff functions which have not evolved from the line may be performed as a part of a line job.

c) Staff units perform supportive functions which become progressively more complex with growth.17

The relationship of the individual to the rational organization structure is also important, since it is quite unlike that found in the first two stages of growth. This relationship may be summarized as follows:

1. Participants are subject to authority only with respect to their impersonal official obligations. Their lives off the job are not normally controlled.

2. They are organized in a clearly defined hierarchy of offices.

3. Each office has a clearly defined sphere of competence in the legal sense. Executives are required to perform according to measures of managerial and technical competence.

4. The office is filled by a free contractual relationship. The participant is willing to aid in the achievement of the organizational objective to achieve the reward of his personal objective.

5. Candidates are selected on a basis of specific performance, qualifications. They are appointed by superior authority, not elected from below.

6. Participants are remunerated by fixed base salaries in money. The salary scale is

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17 For a complete statement of the theory of organization see R. C. Davis, The Fundamentals of Top Management, especially chaps. vi through xiv. See also R. C. Davis and Alan C. Filley, Business Management (Alexander Hamilton Institute, 1962), chaps. x through xiii.
primarily graded according to rank in the hierarchy, though differences in responsibility are taken into account.

7. The office is treated as the primary occupation of the incumbent.

8. The office constitutes a career. There is a rational system of promotion available, with promotion being dependent upon the judgment of superiors.

9. Management and ownership are separate roles. Owners are represented by a Board of Directors in a corporation.

10. The executive is subject to strict and systematic discipline and control in the conduct of the office.\textsuperscript{18}

From this summary of characteristics it may be seen that the rational organization is one with strengths in all of its functions, with a scientific organization of work, with a clear-cut administrative management group. Without the development of specialized line and staff functions and the separation of administrative from operative matters, the growing firm would be akin to the prehistoric monster that grew too large to meet the requirements of its environment. Like the Giant mentioned

\textsuperscript{18} Adapted from Weber, \textit{op. cit.}, pp. 335-36. It is interesting to note that Weber was speaking of all types of bureaucratic organization, economic or otherwise. With respect to the business he said, however, that it is, "from the purely technical point of view, capable of attaining the highest degree of efficiency and is in this sense formally the most rational known means of carrying out imperative control over human beings. It is superior to any other form in precision, in stability, in the stringency of its discipline, and in its reliability." p. 337.
earlier, it would not have enough structure to support its weight. So, too, the temporary nature of the organization in the second stage of growth makes it imperative that a rational structure be developed by the time the third stage has arrived.

Having set out the major characteristics of a rational organization structure it is now possible to deal with several important aspects in more detail. These factors, each of which plays an important role in the successful operation of a rationally organized firm, are the growth of administrative management and decentralization.

In the first place, one of the common misconceptions held particularly by small businessmen and those unfamiliar with the workings of large scale enterprise is the belief that the growing firm becomes inefficient because of the growth of an administrative group. That is, it is mistakenly believed that the development of administrative managers who do not participate in operative functions leads only to a higher cost of doing business.

The actual truth of the matter is that the firm becomes more efficient administratively as it grows both in terms of use of administrators and in terms of cost. Research has shown that an exponential relationship exists between administration expense as a percentage of net sales and the size of firms. As the firm grows the ratio first
declines steeply at the lower end of the scale of size and then gradually declines at a lesser rate, tapering off asymptotically for firms of the largest size. One study of 4107 manufacturing firms that found this relationship indicated an administrative expense of approximately 14 per cent for firms in the $250,000 to one million sales group which declined to 10 per cent for firms with sales of ten million dollars and over.¹⁹

The firm also follows the same pattern of growth in terms of actual numbers of top managers. It may be asserted logically that once the firm begins to plan its organization structure, economies of scale would be such that a continued increase in total employment would require a continued increase in the number of top managers, but at a decreasing rate. Existing research confirms this conclusion, showing that the number of top managers as a proportion of direct labor declines with growth.²⁰ Were the number of top managers not increased with growth, however, even at a declining rate, the results would be unfavorable. Instead of economies of scale, the firm


²⁰Baker and Davis, op. cit., p. 51, DeSpelder, op. cit., p. 44. Also implicit in Haire, op. cit., p. 297.
would realize diminishing returns to the other factors of production and future growth would be seriously hampered.21

In short, the only way in which a growing firm can maintain economy of operation is to add and develop executive leadership which will not be burdened with the day-to-day pressure of operative matters. The restriction of the workforce to operative workers or supervisors is most certainly a false economy which can only lead to restriction of future growth.

This importance may be illustrated by contrasting the development of the organization on structure in Company A with that of Company C. Company A has made an increasing attempt to develop a rational organization structure during its history of rapid growth. At first, although a structure was developed on paper, lines of authority were ignored and responsibility was still rather vague. Gradually, however, lines of authority have been more rigorously followed, and the company has gone through repeated reorganization as growth has necessitated further changes. In more recent years the company has begun work

21While Ernest Dale emphasized this point, he mistakenly placed diminishing returns under such conditions upon the management factor: "For the economies or gains of increasing size, after a certain point is reached, may be offset by diminishing returns from the management factor, since even genius can no longer keep an eye on all activities." The Great Organizers, p. 146.
on the definition of policy and the development of standards of performance.

As a result of its effort to develop a rational structure the firm moves toward maturity in its present product base well prepared to devote top management talent to future planning. The management structure contains sufficient depth so that individual managers may be transferred to new duties or promoted without any serious breakdown in organizational efficiency. Similarly, the entrepreneur, whose role was once critical to organization success, has become less essential. In fact, he was once heard to remark, "This company could succeed without me now."

Contrasted with the above firm, Company C has nearly reached the end of the growth stage yet is almost completely lacking in a rational structure. The two top leaders have retained responsibility and authority in many areas while abdicating it in others. One of the two men, for example, handles all sales for the company. The production manager is handled with kid gloves and given complete freedom in running his department since he is held to be indispensable to organization success. Everyone in the company does his own purchasing.

As a result of its failure to develop a sound organization structure and executive leadership Company C is now
in a period of crisis. It is dependent upon about 25 customers, four or five of which provide most of the business. It lacks any sort of sales program or the presence of administrative executive leadership for that function. Production management is haphazard, with a similar lack of administrative direction. Even though sales are over one million dollars the firm's only financial management comes from a part time auditor. There are no budgets, or cost controls, and production scheduling is rudimentary. The only attempt at organization planning was done a year ago by a management consultant whose advice was ignored. In short, the firm has continued under the simple organization of the entrepreneur to the point where it now must try desperately to compensate for its shortsightedness.

It is almost humorous that, at the time of this writing, the company has abandoned the idea of employing a sales administrator in favor of employing another salesman. It is their feeling that the salesman will "pay his way" while the addition of administrative management would increase overhead expense unduly. This belief, plus the absence of a rational organization structure may seriously hamper the continued growth of the firm.

Associated with the development of top administrative management that was discussed above is the consequent
decentralization of responsibility and authority. The rational basis for decentralization in the third stage must be clarified because of the various ways in which the term is used in the literature today. As it is used here the term decentralization refers to the assignment of specific responsibility and authority for the performance of management functions to subordinates in a rational organization. Thus where the top manager simply assigns the responsibility for a broad functional area to a subordinate without specifying the limits of responsibility and authority, the objectives of the job, the specific functions to be performed, the policy limits to be utilized, and the controls to be used for accountability, then decentralization has not taken place. Such action would be considered an abdication rather than an effective delegation. Effective delegation to decentralize would require all of the factors indicated.

To cite an example of the importance of the above definition: In the organization of the entrepreneur during the second stage of growth it is customary for the entrepreneur to allow many of his subordinates to exercise great personal freedom in the performance of their jobs. These are frequently areas which are highly technical, areas in which the entrepreneur is not interested, or simply areas in which the entrepreneur has great faith in the ability
of the person in charge. Since he dominates the organization with his personality and keeps in personal touch with most of his subordinates, this situation is not particularly critical until growth and size require a more rational structure. Persons viewing such a situation have sometimes felt that the entrepreneur was providing a great deal of decentralization. According to what has been said, however, it is clear that, at most, this is considered at best to be bad decentralization, or better, abdication.

Thus decentralization, and the development of administrative management make important contributions to rational organization structure. A final area of emphasis, the staff, is of such importance that it will be discussed in detail in the next chapter. The conclusions from this chapter will be summarized with the following discussion and analysis at the end of the next chapter.
CHAPTER VIII
STAFF GROWTH

The Growth of Staff Functions

As an organization grows an increasing burden is placed upon top management. This burden arises from the fact that (a) it is increasingly important for top management to exercise administrative management vis-a-vis operative management skills, and (b) additional supportive functions appear which often require specialized or technical skill. Among those administrative demands are the increasing needs to coordinate thought and action. Thus growth places new demands upon the top leadership of the firm in terms of both volume of work and kind of work.

The leadership of the firm may, in general, do one of two things to meet this burden: It may (a) increase its own capacity and ability or it may (b) delegate functions to others. When a leader is inclined to increase his own capacity he may (1) work harder, i.e., put in more time; (2) work better, i.e., better utilize his time; or (3) extend his capacity through the use of general staff assistants, e.g., the "office of the president."
Where the leadership desires to reduce its burden by the delegation of functions to others it may (a) delegate managerial and operative functions to line subordinates, tending to create intermediate levels of authority; or (b) differentiate specialized staff functions, tending to create additional functions at the same levels.

During the second stage of growth the entrepreneur tends to follow the first of the two alternatives cited above -- he seeks to relieve his increasing burden by increasing his own capacity. The reasons for his failure or unwillingness to delegate have already been described: His personal influence is a necessary ingredient to organization success. He maintains a tactical advantage of speed over larger rationally structured firms. He cannot take the time or money to train subordinates in executive leadership and he does not have the necessary rational organization structure.

The only staff to become differentiated under these circumstances would be highly technical or housekeeping functions. When the organization grows to the point where the ability of the entrepreneur to coordinate the efforts of his broad span is limited, then it is common for him to extend his capacity through the use of a general staff assistant. While the use of the general staff assistant is well recognized in business practice, its role has never
been clearly defined in the literature of management. Even a recent book about the use of staff in business organizations contains some conflicting statements about the nature of the staff assistant, apparently caused by different viewpoints of the book's two authors.¹

The most distinct type of general staff assistant is the "assistant-to." It is this type of general staff assistant that is most likely to be found in the second stage of growth. The assistant-to has an "area of responsibility [which] is normally the same as that of his superior or chief; he participates in his supervisor's responsibilities, but none is delegated to him personally as a deputy."² He is frequently referred to as "an extension of the personality of the chief executive," and may act in the name of that officer. He may perform in the name of his superior such varied tasks as coordinating work activities, writing plans and procedures, doing economic research, writing speeches, screening visitors, designing reports, planning company reorganization, part-time public relations or personnel, or general trouble-shooting.³ Since the entrepreneur typically hates details

²Ibid., pp. 49-50.
³Ibid., pp. 51-52.
and paperwork, the concern for these matters is easily turned over to an assistant.

Business Week surveyed 300 companies in 1957 and found that about 70 per cent had an "assistant to the president." Results showed that in a majority of cases the job and title had been created within the past five years and that salaries of the men ranged from $10,000 to $75,000 a year. They also concluded that the trend was toward the greater use of assistants. While they did not classify companies according to size, it was indicated that the assistants were frequently used where the line executive was unwilling or unable to delegate more to subordinates.

The experience of the companies in the present study also tends to confirm the above reasons for using the assistant-to in a growing company. Four of the five firms had used assistants-to the president during the growth stage, three successfully over several years. Only Company C has never had a staff assistant, and in that company little entrepreneurship is found anyway, with leadership duties shared by two top men. Present entrepreneurs all stated that their assistants had the freedom to act in their name.

The confusion surrounding the use of the general staff man is explained when one considers the other types to which the term refers to besides the assistant-to. In the first place, it is natural that the assistant-to might develop a special competence in some functional area like public relations, economic research, or legal matters and so assume delegated responsibility and authority in that functional area. When this happens he does double duty, acting as the assistant-to on one hand, and as a more specialized assistant on the other, performing in the latter case functions which may or may not also be found elsewhere in the organization.

Secondly, the term "general staff" is also used to refer to general administrative staff executives who act as important headquarters staff personnel in large decentralized organizations. In such cases, the staff executive will act as a major policy and coordinative agency for parallel staffs at lower organizational levels. This usage, however, is outside the scope of the present discussion.

As the firm grows from the entrepreneur-dominated organization to a more rational structure, the tendency is for the firm to shift to the second of the two alternatives mentioned earlier. That is, the executive leadership of the firm will relieve its increasing burden by delegating
functions to others. Managerial and operative functions are delegated to line subordinates, tending to lengthen the chain of command as rational spans of control limit growth in width. In addition, more specialized staff functions become distinctly and completely differentiated from the line organization.5

The decentralized, rational organization structure would appear to be basically incompatible, on the other hand, with the use of the assistant-to position. The former is based on a delegation of functions to decision centers in keeping with the rational ordering of work described earlier, while the latter presumes the superiority of the chief executive, the inability of subordinates, or a lack of sound organization. While it is true that assistant-to positions are found in large complex organizations today, their presence does not seem consistent with the objectives of the rational organizations. The fact that their use is increasing probably reflects a change in national philosophy toward desiring or at least accepting centralism of social institutions, a matter outside the scope of the present study.

5Discussion here is primarily concerned with these steps in staff evolution, though it should be realized that continued growth may also lead to staff integration, staff elevation, staff decentralization, and even to complete staff separation. R. C. Davis, The Fundamentals of Top Management, pp. 379-81.
To illustrate the case against the staff assistant in the third stage of growth: Ralph J. Cordiner, former president of General Electric has said that "GE has no place for assistants-to or administrative assistants." Such positions, he feels, create confusion as to responsibility, authority, and accountability. "If a position is too big for one person," said Cordiner, "then the work should be divided up and reorganized into as many positions as are required to do the work efficiently. Each position should be able to stand on its own, with specifically defined areas of responsibility and authority."^6

The type of staff that is compatible with the growth of the rational structure arises to fill two needs. First, is the need for expert technical assistance that is either beyond the skill or training of line executives or else does not fit logically in line functions on a basis of functional similarity. Second, is the need for coordination and control of the diverse organization units in the total structure.7

^6Quoted in Business Week, op. cit., p. 196.

^7This distinction is, for the most part, unrecognized in the literature of management, where the tendency is to classify staff according to the type of facilitative function performed, e.g., service, advice, control. The only authors who recognize this dichotomy to the writer's knowledge are Davis, op. cit., p. 385 and Mason Haire, "Biological Models and Empirical Histories of the Growth of Organizations," Modern Organization Theory, p. 289.
Just why this staff is needed is explained by the fact that with growth the firm gradually loses its identity as a single entity built around one man and takes on the character of an institution made up of a group of organizational units. Chester Barnard has commented on this transition, stating:

... growth of organization beyond the limits so imposed can only be accomplished by the creation of new unit organizations, or by grouping together two or more unit organizations already existing. ... All organizations except unit organizations are a group of two or more unit organizations. Hence, a large organization of complex character consists not of the services of individuals directly but of those of subsidiary unit organizations. Nowhere in the world, I think, can there be found a large organization that is not composed of small units.\(^8\)

What had formerly been a simple organization coordinated by the entrepreneur and through cross-coordination, gradually becomes and institution in which specialized aid is needed to continue existence. Research staffs enable the firm to reduce risk and uncertainty about the future. Staff reports and statistics, written and sent through channels, insure that a coordination of thought occurs among various units. Committee meetings similarly relate the thought and action of parts of the organization. Staff planning insures adequate supplies of men, money, 

\(^8\)Chester Barnard, The Functions of the Executive, p. 110.
and materials when and where needed. Staff controls insure a balance of operations. The various staffs function like the complex organs and nervous system of the living organism, keeping it functioning effectively and as an integrated whole.

The exact rate by which staff functions grow has been a matter of some concern among management authorities. The most logical and defensible position has been stated as follows:

The various functions of an organization increase in scope and complexity, as well as in the amount of work and the technical requirements for their proper performance, as the volume of business grows. The complexity of functional relationships tends to increase in geometric progression as the volume of work that the organization must handle increases in arithmetic progression. Staff organizations tend to grow faster than the line organizations they serve.\(^9\)

The square-cube law would tend to confirm this position since the volume of supportive functions would have to increase at a rate faster than the growth of the mass.

Based on the above reasoning it is logical to assume that even in the second stage of growth in a relatively small organization one should be able to see staff growth at a more rapid rate than line. Obviously, however, the rate would depend heavily upon company policy. If the sentiment of the entrepreneur is against the addition of

\(^9\)Davis, op. cit., p. 232.
indirect labor, one would expect to find only the differentiation of basic housekeeping and facilitative functions like secretaries and maintenance and perhaps some highly technical functions. Eventually, however, the necessary functions would have to be distinctly separated, if successful maturity is to occur.

The degree to which the expected rate of staff growth has taken place, as measured by the present and other empirical studies is examined in the next section.

Empirical Studies of Line-Staff Relationships

There are in the literature of business five studies, including the present one, which have some bearing on the rate of staff growth. Each of these will be summarized in this section and then final inferences drawn at the end.

1. The Baker and Davis study. A cross-section analysis of the ratios of staff to line employees in Ohio manufacturing companies was made by Alton W. Baker and Ralph C. Davis in 1954.¹⁰ Using data gathered from 211 companies of less than 25 to 4,000 employees they computed the relationship between all line and staff employees. They also showed the relationship between individual staff functions

¹⁰ Rations of Staff to Line Employees and Stages of Differentiation of Staff Functions, p. 50.
and total line employment. The result in each case is a curve representing the level of staff for companies at various levels of line employment.

The study used direct labor to represent line employment and indirect labor as staff. Indirect labor included personnel engaged in service activities and all supervisors of one or more persons up to and including department heads. Thus top management is not included in either category and the indirect labor (staff) category actually contains some line supervision. From this one might expect some exaggeration in the rate of staff growth as measured in this study.

As shown in Figure 8, the study found a linear relationship between the growth of line and the growth of staff. However, the authors found differing rates of growth for individual functions. Inspection, cafeteria, maintenance, engineering, tool design, and tool and parts each increased at an increasing rate as the number of direct workers increased. On the other hand, supervisors and executives of direct workers, purchasing, tool handling, personnel, accounting, time and motion study, and production control each increased at a constant rate. Finally, top management executives and the staff functions of plant protection and shipping and receiving each increased at a decreasing rate.
TOTAL INDIRECT EMPLOYEES

Total Number of Indirect Employees and Total Number of Direct Employees, Manufacturing Companies, Ohio, 1951.

INDIRECT WORKERS

![Graph showing the relationship between indirect and direct workers with the equation \( Y_c = 0.75X \).]

Fig. 8. Line-Staff Relationship in Baker-Davis Study.

Source: Alton W. Baker and Ralph C. Davis, Ratios of Staff to Line Employees and Stages of Differentiation of Staff Functions, Bureau of Business Research, The Ohio State University, Number 72, p. 15.
From these results the authors concluded that, both from the standpoint of all staff and from the standpoint of individual staff functions, the commonly held belief that the staff grows by a geometric function as the line grows linearly was disproved.

2. The DeSpelder study. A second study was made with somewhat the same methodology by Bruce DeSpelder in 1959.\textsuperscript{11} This study was a cross-section analysis of 155 companies in the automotive parts manufacturing industry, ranging from 5 to 2,400 employees. Besides plotting the line of best fit for the number of staff employees at each level of line employment, the ratio of staff divided by line was also shown.

Line employment in the study was represented by all direct employees, not including sales. Staff employment included all indirect employees, including staff executives but not including top line management or multiple assignment personnel. Survey respondents were given a list of several staff functions as a guide to reporting indirect employment with only additional space at the end for listing remaining activities.

As indicated in Figure 9, the results showed total staff functions growing at a slightly decreasing rate.

\textsuperscript{11}Ratios of Staff to Line Personnel in the Automotive Parts Manufacturing Industry, p. 44.
Fig. 9. Line-Staff Relationship in DeSpelder Study.

Only for small companies below about 88 employees was there evidence that staff grew faster than line. This was represented in a rapid rise in the staff-line ratio to that point of employment, followed by an increase in the ratio at a decreasing rate to about 550 employees. After that the staff-line ratio actually begins to decline. From 150 to 2,400 employees, however, the ratio is between .53 and .57 of line employment.

Regarding individual functions, the study found that six staff functions increased at a decreasing rate. These were accounting, engineering, maintenance, production planning and control, purchasing, and tools and patterns. The line functions of sales and top management followed a similar pattern. Those staff functions which increased at a constant rate were inspection, personnel, plant protection, and product and materials handling. Other functions were examined but did not contain a dominant trend sufficient to permit generalization.

In general, it may be said that the DeSpelders study confirmed the Baker-Davis study on the relative growth of staff to line. A rapid increase in staff at very low levels of employment was observed but this is probably due to the definitional matter of recognizing differentiated functions no longer completely integrated in the line. During the remainder of the regression the trend did
decrease, but only slightly. What is surprising is the difference in results of the two studies concerning individual staff functions. Of the ten functions repeated in both studies only one, personnel, showed the same trend.

3. The Haire study. An alternative to the cross-section, or "point-in-time" analysis made in the two previous studies is the longitudinal, or "historical" method. The first represents a series of measures at an instant of time arranged by size of employment, while the second is a study of the line and staff ratio for each year of a company's history. The Baker-Davis study had noted the possible value of the longitudinal study stating, "... the point-in-time approach had to be used rather than the historical, since most of the companies cooperating in the study either did not or could not furnish the historical data. Historical data would be ideal to apply in this analysis but were impossible to secure."^{12}

The longitudinal method was used, on the other hand, in a study of the growth history of four companies made by Mason Haire and reported in 1959.^{13} The companies, labeled B, C, E, and F had a then present employment of about 2,000,

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^{12}Baker and Davis, op. cit., p. 8.
275, 200, and 300 respectively. Employment for each year in the life of each company was classified as line and staff, and each of these classifications was figured as a percentage of total employment. Presented in this fashion, a growth of staff at the same rate as the growth of line would show as a trend paralleling the X-axis, while growth at a faster rate would evidence an upward trend in the staff percentage line.

The results of his analysis are shown in Figure 10. Each firm shows a geometric increase in the growth of staff during the early period of growth. Later, companies E and F stabilize at about 30 and 25 per cent of total employment, and continue growth at that level. Companies B and C, after their geometric growth of staff, appear to be stabilizing at about 50 per cent of employment. Thus, although Haire is critical of the principle that staff grows at an exponential rate, he does an excellent job of proving just that, at least for the earlier years of growth.

It is important to note also that Haire finds "less relation between absolute size and the steady state of the line-staff proportion than with age." This supports the

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14 It is interesting to note that Haire, a psychologist, shows a surprising lack of familiarity with the basic classification of line and staff in the management literature. Op. cit., p. 288.

15 Ibid., p. 289 [underlining mine].
Fig. 10. Per Cent of Line and Staff Personnel during Growth of Companies in Haire Study.

contention in the present study that staff growth is in part a product of the growth cycle, not size alone.

Haire's study is weak in several respects. First, the inclusion of a company with 2000 employees with three others having less than 400 may be misleading. It is quite possible that the three smaller firms are in the first cycle of growth, while the larger firm may show the growth of a complex organization having several overlapping growth cycles in more than one product base. Secondly, the study does not identify the industry in which each of the firms studied operates. Staff growth might be expected to vary considerably, for example, between a retail firm and a manufacturing organization.

Third, the study does not identify stages of growth. It would be helpful in a historical study of this sort to associate the growth of staff with internal changes in the organization. This is particularly true in the case of Company B, for its continued growth in its large size with a ten year increase in the staff proportion might suggest that the geometric increase expected in staff actually occurs when single firms are viewed historically over a long period of time.

Finally, Haire is curiously trapped in his own logic. Emphasizing as he does the importance of the square-cube law, the supportive staff functions would be expected,
logically, to increase faster than the company does. His conclusion that the staff will grow by a linear rate in its later years is curiously opposed to this outcome, however.

4. The Terrier and Mills study. A fourth empirical study may offer some means of resolving the conflicting empirical evidence on staff growth and the difference between logic and measured reality. While not intended as a study of staff growth, a study conducted by F. W. Terrier and D. L. Mills may be relevant.16

The authors sought to prove that the administrative component of an organization increased at an increasing rate with growth. Using a cross-section method they studied the increase in the administrative component of school districts in one state in different sizes of districts. This type of organization was used because it provided organizations that distributed themselves over a continuum of size at the same time maintaining a consistency of function.

The administrative component in each group included "the superintendent, his assistants, his immediate staff, principals, business managers and the like." The non-administrative group included "teachers, nurses,

custodians, cafeteria workers, and the like." From the standpoint of the line-staff distinction, it may be argued that while both of the above groups contain some staff personnel, the administrative group probably contains the greater number. In such organizations the various service functions other than housekeeping are normally assigned to the administrative group.

The results of the study showed that the administrative group did grow at an increasing rate as had been hypothesized. In elementary school districts, in high school districts, and in unified and city school districts, the administrative component increased at a rate faster than the size of the group increased. For example, the mean percentage in the high school districts containing a range from groups of 10 to 859 persons rose from 11.4 to 17.6 per cent.

These results would indeed be puzzling when compared with the growth of top management at an opposite rate shown in the other studies mentioned earlier if it were not for the fact that the administrative component also contains staff. In other words, since it is fairly well established that top management must grow at a decreasing rate, then the remainder -- the staff -- must have increased at an increasing rate. And if the staff included in the
non-administrative component were deducted, the resulting growth in staff would be even more spurious.

There are three points worth noting in this connection. First, in order to properly view the geometric increase in functional complexity that has long been suggested in the management literature by the Law of Functional Growth one may have to consider both top management and staff as coordinative and supportive in nature. Since technical and coordinative staff functions are designed to aid management in the performance of planning and control, it is logical to assume that all top management and staff functions are part of the same whole. The only difference is that staff seeks secondary objectives as aids to the line. Thus, it may be asserted that as the line increases, the need for coordination of thought and action increases at a geometric rate.

Second, following logically from the first assertion, the rate at which staff functions are differentiated in an organization depends upon the degree to which management is willing to delegate functional duties of coordination to staff personnel. This calls for a policy determination by management, since such functions as engineering, purchasing, cost control and quality control may be performed by line personnel or delegated to staff. If indirect labor is to be restricted, then the rate of staff growth may be
expected to be restrained, to only the most essential housekeeping and technical functions.

Finally, the Terrier-Mills study differs from the Baker-Davis, and the DeSpelder studies mentioned earlier because it consciously used organizations whose product base had not changed. Perhaps the rate of staff growth in the latter studies was affected by the greater complexity, a compounding of product bases, or a changing character of the firm over time, as through merger activity or technological change.

5. The present study. A longitudinal study of staff growth in the present companies was made in an effort to resolve some of the contradictions in previous studies of line-staff relationships. The proportion of line and staff personnel for each year in each company's history was computed, and these presented as a percentage of total employment. Line personnel include all those engaged in providing salable value, including line supervision and top management. Staff personnel included all those engaged in contributing to collateral or secondary objectives, including their supervision. Thus, unlike the previous studies mentioned a true breakdown of line and staff was attempted.

The use of the longitudinal study provides a clinical viewpoint upon the problem of staff growth that is not
possible when only total averages are studied. For example, important insights have been made in studies of industrial accidents, once the emphasis was shifted from a study of trends in total accident frequency and severity to the study of accident patterns for individuals. Similarly, the clinical viewpoint is most useful in resolving the conflicting analytical and empirical viewpoints about staff growth. For this reason, attention will be devoted first to the history of staff growth in each company and then to their total pattern.

a) Company A. The percentage of staff grew from nothing to nearly 40 per cent of employment in just six years in Company A. Growth has leveled off during the last four years, though this may be attributed more to a cyclical decline in sales and a reappraisal of the organization structure after an accelerated buildup of employment in early years.

The firm has made a conscious attempt to develop its organization structure along efficient lines. Much of the credit for this goes to its president who realized the importance of sound executive leadership for continued company success. Until 1956 the main pattern of staff growth was a differentiation of technical staff functions with coordination handled by top management aided by general staff assistants. The 1956 organization chart, for
example, shows the President having an "Administrative Assistant" and an "Assistant for Personnel." Reporting to him was the Executive Vice-President who had an "Assistant for Planning" and an "Assistant for Organization." By 1960, however, the number of top-level assistants had been reduced to one, and coordinative as well as technical staff began to appear in special staff departments. Committees and meetings also aided in coordinative duties.

The rate of staff growth in Company A is shown in Table 18, and Figure 11. Since the company is a manufacturing firm in a highly technical field it might be expected that it would need considerable technical staff support in early periods of growth. Indeed this seems to be the case.

b) Company B. Table 19 and Figure 11 show a slight long-run geometric increase in the growth of staff in Company B. Growth is probably restrained for two reasons. First, the firm has continued under the leadership of the entrepreneur with little shift to sound executive leadership or a rational organization structure. Thus staff is largely housekeeping or clerical and an assistant to the president handles much of the coordination. Secondly, the total number of employees has never been large enough to warrant the extensive differentiation of technical staff functions.
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Fig. 11. HISTORICAL STAFF GROWTH IN FIVE FIRMS
TABLE 19
LINE AND STAFF EMPLOYMENT IN COMPANY B DURING GROWTH

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The buildup of staff in 1951 was due to excessive optimism as the growth cycle peaked out and additional office help was added. The more rapid rate of growth in recent years would probably be accelerated further if the rational structure became developed more fully.

c) Company C. The growth of staff in Company C may be seen in Table 20 and Figure 11. Staff has grown at a fairly rapid rate for the last eight years, with an early peak in 1956 of 35 per cent of employment. As has already been discussed in detail, the firm still has not developed a rational structure to carry it into the third stage of growth. The growth of staff thus far has been due primarily to the differentiation of housekeeping and technical functions. A big step was taken, for example, with the addition of a man to handle a combined job of materials handling, production scheduling, and fabrication. Such common staff functions as engineering, accounting, personnel, production control, purchasing, quality control, or shipping and receiving are not differentiated.

It should be noted that while empirical evidence points to a geometric increase in the rate of staff, the firm still has a long way to go in terms of developing effective staff utilization. Nor can it be argued that the firm does not have enough employees to warrant this use,
# TABLE 20

LINE AND STAFF EMPLOYMENT IN COMPANY C DURING GROWTH

<table>
<thead>
<tr>
<th>Year</th>
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for the absence of administrative planning and control has become one of the major limitations on continued growth.

d) **Company D.** Company D had a rapid increase in the percentage of staff during its early years, as shown in Table 21 and Figure 11. Then failure in leadership and organization led to a rapid deterioration of the firm under the direction of a man who was unable to make the transition to the third stage of growth. The percentage of staff probably would have continued to grow were it not for the fact that the entrepreneur employed too many sales personnel. His employment of personnel at a faster rate than sales was uneconomic, and distorts empirical evidence, for number of staff personnel actually increased until the firm collapsed in 1956.

Those staff that were employed were generally limited to maintenance and office staff. With the exception of an educational director, and temporary presidential assistants, technical and coordinative staff functions remained undifferentiated.

e) **Company E.** The effects of company policy on staff may be seen in Company E, which had only a slight increase in the percentage of staff before 1950, followed by a leveling at around 10 per cent of total employment. As Table 22 and Figure 11 illustrate, the long run trend has been a linear growth in staff as line employment grew.
<table>
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<th>% Line</th>
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This company illustrates the fact that the growth of staff is not necessarily a product of size. Even though Company E reached a peak employment of 378 persons in 1960, and is a fairly complicated manufacturing organization, it has few technical or coordinative staffs. There is no personnel staff, accounting is largely done by an outside firm, and engineering services are absent. Product research is the creation of new ideas by the wife of the secretary-treasurer. Budgeting is just becoming differentiated, and purchasing is still combined with other functions.

The reason for this limited use of staff may be explained by company policy. The firm does not like to add any sort of indirect labor. Yet this is a false economy. To cite particular evidence, the addition of a staff methods engineer who had been brought in originally as a consultant is felt by the production manager to be a major contribution to the efficiency of production procedures and operative compensation. Similarly, the addition of a budget program by the comptroller raised the firm in one year from a low level of profits to an all-time high.

The increasing need for coordination of activities has been met in this firm in three ways. First, it has continued to rely upon the use of a general staff
assistant. Secondly, authority has been delegated to lower levels of line management. Finally, an increasing use is made of formal and informal committees. These developments have allowed the firm to develop a more rational structure without a growth in distinct staff units. It appears unlikely that the firm can continue successful growth, however, without the increase in the number of these staff units.

f) General analysis. Taken together the firms support the evidence from the previous studies that staff grows at a faster rate than line during early years of growth. This is largely due to the fact that some functions become differentiated early and are recognized at that time.

It seems more important to generalize on other matters, however. First, it is evident that, aside from housekeeping functions like secretaries and janitors, specialized technical staffs tend to be organized before those dealing with coordination or control. This finding confirms statements by management scholars on the subject.\(^{17}\) Secondly, the development of staff is related to the growth cycle as well as company size. Firms in the same industry may stabilize at different levels of employment, but there

\(^{17}\)See, for example, Davis, op. cit., p. 386.
are certain staff services that should be provided. That is, the development of a rational structure requires the establishment of certain basic staff functions.

Third, common measures of line-staff relationships are somewhat misleading when used to prove or disprove the corollary of the Law of Functional Growth. This Law states that the complexity of functional relationships in an organization tends to increase in geometric progression as the volume of work that the firm must handle increases in arithmetic progression. From this it has been reasoned that the staff organizations in the firm, tending to aid in overcoming increasing complexity, must increase in geometric progression as the line grows arithmetically.

Yet the two cross-section studies of business firms showed no such geometric increase and part of the firms viewed historically also seemed to grow linearly. Thus empirical evidence seemed to disprove the corollary. On the other hand, logic and observable evidence argue that it should be true, as supported by the square-cube law and the literature of management. The answer to this puzzle, suggested by the Terrier-Mills study and further supported in the present analysis, is that what grows by a geometric function is the amount of coordination required. This coordination may be performed by line managers or by line and staff personnel, including committees. The extent to
which coordination is turned over to staff is a matter of company policy.

Companies relying heavily upon middle management and committees for coordination would, therefore, not show a rapid growth in staff, since the measure used is incomplete. The measure of growth in top management, staff units, and committees would be much better. From what has been said and from present evidence there is little doubt that the result would be the growth of coordination (if not staff units) by a geometric function.

Finally, while not indicated empirically by the present study, it is logical to assert that the continued growth of an efficient single firm over the range of size utilized in the Baker-Davis and DeSpelder studies would show a geometric increase in the growth of staff units, including committees. Assuming that policy allowed the proper utilization of staff, the larger firm would very likely show an increase in its utilization of staff.

There are several reasons to support this position. First, to mention the square-cube law again, the amount of functions necessary to hold the organization together would have to increase faster than the size. Secondly, the growth beyond the first growth cycle would lead to the development of several cycles at once, or to merger activity. A whole complex of headquarters staffs would
generally be necessary when this happened. Other staffs would develop due to size for the same reason that new functions are developed in the evolution from worm, to fish, to man.

Third, the earlier studies tended to concentrate on the development of selected staff functions as the firm grew larger. The Baker-Davis and DeSpelder studies, for example, either mentioned briefly or did not study the development of the following staffs: product research, public relations, corporate headquarters staff, staff assistants, secretaries, traffic, advertising, sales planning, organization planning, legal aid, economic research, labor relations, executive development, cost control, or market research. Many of these would be developed in larger and more complex organizations.

Summary

This chapter attempts to isolate some of the major variables involved in business growth and to examine the affects of these factors upon the size, shape, and function of a growing firm. The results may be summarized as follows:

1. The size of the structure may be roughly measured by the number of employees. As the size increases it is affected by the square-cube law which says that as volume
increases by a cubic function, the surface enclosing it increases only by a square function. Thus an increase in size alone may be expected to cause a change in the shape of the firm, there being a best shape for a particular size. Furthermore, the functions performed by a firm should change as it increases in size, since the proportionate increase in mass compared with surface demands more and different supportive functions.

In dealing with this law one must use care to differentiate between the relative size of an organism in a single life cycle and changing size in a long run evolution of several life cycles.

2. The shape of the structure tends to take on certain characteristics as it passes through each of the growth stages.

   a) The firm in the first stage is free from any dominant tendency. Roles are assigned according to the rights of traditional authority, with the shape of the structure depending upon the dictates of the legitimate leader or of tradition itself. In business organizations legitimacy is generally established by ownership of assets and in the subordinate roles by friendship and kinship ties with the leader.

   b) The second stage of growth is characterized by a flat structure. Spans of control become wider and the
number of levels restricted to facilitate the charismatic power of the entrepreneur. When the burden of coordination becomes too great the entrepreneur may extend his personality through the use of general staff assistants. The centralized coordination in this stage is useful for it keeps the firm able to adapt to or initiate changes quickly. Wide spans also contribute to the needs of subordinates in this stage for freedom of action, since wide spans promote greater independence than narrow ones.

c) As it moves into the third stage the firm develops a rational organization structure with narrower spans of control and decentralization of authority. The firm tends to grow longer and to develop, in line and staff units, specific objectives, policy, functions and authority. Personnel are hired to perform a particular set of duties, and their loyalty tends to be toward the system in general and the job in particular. The functions of administrative management become separated from those of operative management. Both the cost and percentage of top managers tend to decline with growth, so that the failure to develop administrative management at the proper time is false economy, leading to weakness in the firm.

3. The rate at which staff grows in the firm is explained in part by the particular way in which top management deals with the increasing burdens of planning,
organizing, and controlling. To meet the increasing burden the leader may do one of two things:

a) He may increase his own capacity and ability by working harder, working better, or extending his capacity through general staff assistants.

b) He may reduce the burden through delegation to others. He may delegate managerial and operative functions to line subordinates, or he may differentiate specialized staff functions.

4. During the second stage of growth the entrepreneur tends to follow the first alternative (3a). He drives himself and acts as central coordinator. When the burden becomes too great he adds general staff assistants. The only other staff during this stage is likely to be highly technical or housekeeping functions. As the firm moves into the second stage, becoming more rational, the burden of management is delegated to subordinate line and staff managers (3b).

5. Five empirical studies of staff growth were reported, three of them cross-section analyses and two -- including the present study -- longitudinal. All of them sought to prove or disprove the commonly held notion that staff grows by a geometric function as the line grows linearly. In general, the cross-section studies showed that there was some initial geometric increase in staff
functions as they become differentiated during early years of growth, but that growth was nearly linear during the remaining years. Longitudinal studies of single firms, on the other hand, tended to show the same rapid growth as functions became differentiated and then staff growth in one of two patterns: some firms continued the geometric increase in the growth of staff, while others leveled off and grew linearly. The continued geometric increase may be explained in part by the small size of the firms studied. It might be noted as well that some firms showed a linear growth in staff much earlier than normally expected.

The conclusions from these studies may be summarized as follows:

a) The studies do not disprove the belief that the staff will grow geometrically. Cross-section studies probably hide the rate of staff growth through averaging. A single firm growing through several life-cycles would have to increase its proportion of coordinative support, or collapse.

b) It would be more accurate to say that the need for coordination of thought and action increases geometrically as the operative line functions increase arithmetically. Taken together, top management, staff functions, and committees would evidence this growth rate. The rate of growth
in individual staff units during a growth cycle depends upon a policy determination by top management.

c) Specialized technical staff functions become differentiated before coordination and control staffs. Committees are important as coordination units, yet are often overlooked in measures of staff growth.

d) It is somewhat misleading to represent staff growth as based upon differentiated staff functions. The rapid increase in growth during early years is due more to definition than to growth, since prior to their separation the functions existed as part of the line.
CHAPTER IX

INNOVATION, INVENTION, RISK, AND UNCERTAINTY

Purpose of the Chapter

The objective of this chapter is to clarify the meaning of important growth factors: innovation, invention, risk and uncertainty. By doing so, their role in the theory of growth presented here should be made more definite.

Innovation and risk both have important influence on that unique combination of forces called a growth cycle. Just why a combination of several factors can cause a take-off and maturity cannot be explained fully. Yet the fact that, once started, the growth cycle takes place at a predictable rate in a predictable pattern has been demonstrated by several studies both national and business growth.\(^1\) It is the opinion of the writer that the political, economic, social, and philosophical climate that exists may be the "plus-X" factor that binds the growth factors together in the correct combination. Some historical insight into this climate for growth is explored in this

\(^1\) For a discussion of this point and a list of national and industry studies see Appendix B.

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chapter. A complete analysis of this subject would, however, require a study as long as the present one on the growth cycle.

Whether or not a firm with only part of the growth factors present can manage a take-off is also a matter of question. The limited evidence available suggests that it can, so long as vital factors are present like the innovation in the beginning and sound management and organization at the end of the cycle. The weakness or absence of certain factors or the failure in timing of their development may result in a slower rate of growth and a stunting of the growth cycle.

It is also obvious that various factors may be introduced into a firm without a growth cycle occurring. A growth in sales or assets is certainly not present only in a growth cycle. That is, a continuing increase in sales or assets does not necessarily indicate a growth situation. Such phenomena may occur without any substantial or continuing improvement in the firm's share of its market or profit position relative to the rest of the industry.

A firm may grow because inputs increase or because productivity increases. We have been discussing the latter. A firm may introduce inputs in the form of new products during a period of traditional leadership or executive
leadership and experience increased size and output. Quite often, the firm will introduce new products as a defense against the natural decline of demand for present products. These products are generally developed by staff units within a rational organization structure and dealt with by executive leadership, rather than being a part of a growth cycle.

New products relate to the firm in other ways. In some firms, as in Company D, a single product constitutes a product base while in others, like Company E, the base is made up of a series of products which enter and leave the market at various times. Others, like Company B, seem to rely for their continued existence upon their ability to ride a single product to the third stage of the growth cycle, then drop it to start another cycle. Others, like U.S. Steel, may be observed to minimize the idea of internal growth through new products and turn to external growth through merger and acquisition.

Part of the explanation for these varied patterns will be found in the discussion which follows.

2A partial answer may be found in the position of the product on the continuum running from consumer goods at one extreme to producers' goods at the other. The former tends to have shorter "product cycles" than the latter. Thus, the firm producing consumer goods would have to rely on a multi-product base while the producer of heavy machinery could utilize a single product base. See The Management of New Products, Booz, Allen and Hamilton, private publication, 1960, p. 6.
The Process of Innovation

The growth cycle is a function of disequilibrium. It arises out of the introduction of an innovation and other factors and reaches a successful conclusion through the ability of the firm to overcome disequilibrium. The innovation of the business firm may be thought of as the result of an innovative process: the conceptualization of the new idea, the development of an idea and its adaptation to business use, and the utilization of the idea in business practice. 3

While it is sometimes necessary to refer to an individual as an innovator, the process of innovation is more accurately thought of as a sequence of steps performed by several individuals. The conceptualization of the idea and its development for business use may be the contribution of an inventor, while the utilization of the idea may be performed by an entrepreneur or an executive leader. In a large, rational organization it is not uncommon for the job to be divided among a number of highly specialized persons, including, perhaps, the inventor of the idea, members of a new products committee or department, a research and development staff, and members of top management.

3 See p. 178.
One large consulting firm breaks down the innovative process into what it calls the "stages of new product evolution":

1. Exploration
2. Screening
3. Business analysis
4. Development
5. Testing
6. Commercialization

It is interesting to note the absence of the real first step, invention, in these stages. This oversight is not peculiar to this example, but is a symptom of a more general blind spot on the part of Western economic systems. Classical economists in England and the United States have tended to take the improvement in the state of the arts, or innovation, for granted. With the notable exception of Schumpeter and some more recent economists, it has normally been assumed that technology was either "given" or would improve so long as sufficient investable funds were available. As a result, little attention has been directed to innovation, particularly as a means for increasing productivity.

Some innovations such as a new market or a new source of supply may simply exist in the form of a situation which is grasped and promoted by an entrepreneur. Others, however, like a new good or a new technique of production

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4 The Management of New Products, p. 10.
will generally require the process of invention. In smaller firms entering their first growth cycle the invention is nearly always created outside the firm, unless the entrepreneur is also the inventor. In a larger, rational organization, on the other hand, the task of invention may be done through staff research.  

The following section sets out some of the qualitative and quantitative patterns that exist regarding innovation that have relevance to the growth theory of the firm. The information to be presented serves a dual purpose: First, it aids in clarifying the source of innovation. Secondly, it relates innovation to growth cycles, indicating some of the conditions that tend to promote a proper growth climate. The historical relationship that has existed between innovation and national growth is first described, then a parallel pattern of innovation and business growth discussed. Except where otherwise indicated, it is assumed that invention and innovation are synonymous. Also, for purposes of simplicity innovations like the development of a new market opportunity, which do

\[5\] One study of the source of some sixty important inventions during the twentieth century found that about half came from industrial research staffs while the other half came from individuals working on their own. See John Jewkes, David Sawers, and Richard Stillerman, The Sources of Invention, p. 82.
not arise from invention, must be excluded from this discussion.

Trends in Innovation

As Chapters III and V have suggested, there is evidence that the United States has gone through its own growth cycle and is only now entering its third stage of national economic growth. The United States probably entered its take-off about 1840, reached the middle of its growth stage about 1900, and is presently entering the stage of maturity. Thus, the turn of the century provides a convenient dividing point between the preceding 60 years during which the country grew at an increasing rate and the 60 years following 1900 during which the country has grown at a slower rate to achieve the fruits of maturity.

The characteristics of national growth during the growth stage also correspond to those already described in the individual firm. The early period of growth contained few national objectives or policies. Emphasis was upon personal equality and freedom and government control was minimized. Business was, for the most part, free and uncontrolled. Population and employment grew rapidly, but national product grew even more rapidly. Business leadership was generally considered an art and business units were seldom very large or complex. Like the small firm
growing from its strong function, the country grew from basic economic sectors: agriculture, lumber, steel, railroads, and public utilities.

As it passed the turn of the century, however, the country began to develop the characteristics of maturity that it would need for successful achievement of the third stage of growth. "Bigness and the managerial system together were the fundamental business development of the twentieth century." Corporate giants developed. Both individual economic sectors and the country as a whole began to develop a rational organization structure. The federal government became a complex organization with a hierarchy of authority and line and staff units, particularly during and after the 1930's. Management became an emerging profession to be pursued with scientific methods. The country became an institution with strong economic sectors within it.

As the country moved toward maturity and many of its important economic sectors began to develop rational organization structures, the following changes took place with regard to invention and innovation:

a) The number of important new inventions began to decline.

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b) Invention became less an individual effort and more the product of organized institutional research.

c) Invention became less the product of artistic intuitive genius and more the product of science and technology.

d) Invention was initiated less from those controlled by the market and more from conditions of market control.

e) The rate of total invention per capita began to decline.

1. Change in the importance of invention. The qualitative and quantitative evidence regarding the importance, number and source of invention is presently tangled into a web of argument and contradiction by those interested in the subject. Some are puzzled by the presence of empirical exceptions to what appear to be general trends. Others are prone to exaggerate limited evidence so long as it supports their own bias. In spite of all this, however, there is considerable evidence to support certain general conclusions. One of the most significant is the belief that the number of important inventions has diminished as the country has moved toward maturity.

If one compares the inventions that occurred in the United States between about 1840 and 1900 with those between 1900 and 1960 it is difficult to avoid the conclusion that
the earlier period provided much more important innovation. The earlier period offered such major breakthroughs as the airplane (1896), the aluminum-making process (1886), the gasoline automobile (1892), the gasoline engine (1872), the incandescent lamp (1878), the turret lathe (1845), the movie machine (1893), the oil-cracking process (1891), cheap steel (1857), the telephone (1876), and vulcanized rubber (1839). These are only a few of the inventions which contributed to the development of industries in textiles, agriculture, war, printing, broadcasting, canning, construction and transportation. In fact, "the last third of the nineteenth century saw inventions proliferate in the United States; it is indeed often regarded as the great age of 'heroic' invention."^7

As for the period after the turn of the century, aside from atomic energy, once one mentions the invention of nylon (1930), radar (1922), the rocket engine (1929), and television (1934), he is hard-put to find "major" inventions. There are, of course, a number of improvements on basic devices or processes, like the automobile self-starter (1911), ethyl gasoline (1922), the FM radio (1929), the radio-telephone (1902), and power-steering (1925). There are also such consumer items as Cinerama, the ball-point

^7Jewkes, op. cit., p. 53.
pen, the long-playing record, the safety razor, and the zip fastener. And, finally, there are important discoveries in medicine and chemistry, like insulin, penicillin, cortisone, and the polio vaccine. Yet few of these have had the impact upon industrial growth of the innovations in the earlier period.  

2. Emphasis upon institutional research. It is not surprising that the development of large scale rational business enterprise has been accompanied by the development of organized research and development staffs. At the present time about 3 per cent of the national income is spent on research, of which more than half comes from spending by the Department of Defense and the Atomic Energy Commission. In the civilian sector roughly two-thirds is spent for product development and one-third for research.  

The process of invention has grown in its dependence upon organized research since the turn of the century. Measured by the production of patents at least, it has changed from an activity overwhelmingly dominated by

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8 Thomas Cochran has remarked that the reason for the failure of the United States to reach full employment from 1925 to 1940 was, in part, the fact that there was "no major innovation" during that period. See op. cit., p. 50.

independent individuals to one less overwhelmingly dominated by business enterprise. Where once inventions stemmed from individuals in many walks of life, today a little more than half come from persons in the technological professions employed in their specialized capacities by private or public institutions.\(^1^0\)

The progressive institutionalization of discovery and invention has made captive inventors out of persons who might once have worked independently. This shift to institutions is encouraged by the fact that those trained in science and technology would probably prefer to work near others of similar sentiments. They are also attracted by the facilities available in a large scale organization. In addition, they are encouraged to work for others by the tax system which tends to limit the accumulation of private wealth.

There are inherent dangers in this trend, however. The organization of research effort requires some degree of regimentation by the participants which may restrict or eliminate the autonomist bent on genius.\(^1^1\) The


\(^1^1\) Jewkes, op. cit., p. 239. W. H. Whyte has emphasized the same point. Two companies are notable exceptions to this pattern of "applied" rather than "free research." These are General Electric and Bell Labs. Of these two companies, Whyte says: "Consider three facts
technologists in these research organizations tend to devote themselves to matters requiring scientific treatment or to development of present processes. Thus, they are less likely to make important breakthroughs in industrial technique or mechanical discovery which have historically relied more on intuitive genius and insight than on technical training.

Rational organizations often devote their inventive efforts to areas where the firm possesses available services and resources which are not in use, or to areas which will enable the firm to release resources through greater economy and efficiency. For example, company research is often concerned with the use of what is presently waste material, or with the development of a new addition to complete the product line, or with a means of reducing labor cost. Less often is it given the freedom to explore new concepts.

It should not be supposed from what has been said that the individual inventor is not active. One study of sixty major inventions in this century showed that about

about them: (1) of all corporation research groups these two have been the two outstandingly profitable ones; (2) of all corporation research groups these two have consistently attracted the most brilliant men. Why? The third fact explains the other two. Of all corporation research groups these two are precisely the two that believe in 'idle curiosity.'" The Organization Man, (New York: Doubleday, 1957), pp. 230-32.
half had come from independent inventors. Another study of patent statistics showed that about 40 per cent of the inventions made today are not made by technologists or hired inventors. The latter also stated that "mainly because part-time and independent inventors continue to operate in great numbers, about half the inventions patented are still being made by individuals who lack college educations."  

Nevertheless it is clear that in spite of the presence of individual inventors, the portion of total activity performed by organized corporate and governmental research bodies has increased to a dominant portion.

3. More scientific invention. It is a generally held belief that invention in this century is largely a product of science and technology while contributions in the last were the result of flashes of intuitive genius by untrained minds. While it is true that inventions of this century are more often made by scientifically trained personnel, the implication that a complete shift has taken place is mistaken.

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12Jewkes, op. cit., p. 82.
13Schmookler, op. cit., p. 325.
The growing emphasis upon scientific invention may be explained in several ways. First, an organized body of scientific knowledge has continued to develop of which scientists can avail themselves. Second, with the development of a more rational economic system in this century it is natural that there should be greater vocal tribute paid to what is "scientific." Third, with a greater emphasis upon institutional research and development it is expected that technicians would be employed and recognized scientific channels pursued, since both provide "visible" measures by which institutionalized research may be controlled by the management of the organization. On the other hand the inventive genius on the lunatic fringe would not lend himself to the necessary controls of corporate enterprise.

Fourth, the talents required to develop an invention for application to industry probably require more rigorous scientific training than those required to conceive the idea in the first place. Thus much of what passes for scientific inventive effort is probably better classified as development.

Finally, the complexities of the modern age demand greater emphasis upon a scientific base as compared with the older industrial arts. While an untrained mind may
cope with mechanical problems it no doubt requires thorough training to deal with the problems of chemistry and physics.

Thus, while the reason for the trend is difficult to specify exactly, it is clear that the trend to scientific invention has taken place.

4. Greater market control. A shift has taken place with respect to the degree of market control over new inventions. While it is true that the patent system gives limited monopoly rights to inventors, there is considerable difference between the innovator in a competitive market and an innovation introduced under monopolistic or oligopolistic conditions. When an invention is introduced into a competitive market there is likely to be considerable risk and uncertainty involved in the venture, but the opportunity of suitable reward if the venture is successful; the innovator in such a situation is controlled by the market. When, on the other hand, the innovation is introduced by an oligopolistic firm, it is set out under conditions of market control. Since the actions of any oligopolistic firm will have considerable effect upon the others, it may be expected that such firms would be cautious about introducing innovations that are likely to disturb market conditions. In general, it appears that the larger the firm or the better organized the industry, the less its willingness to make existing
equipment and processes obsolete through the introduction of major innovations. There are, of course, important exceptions.

The evidence to support this impression is limited, yet highly visible. For example, prior to World War II the aluminum industry was one of the most nearly monopolized industries in the United States. Of the three major discoveries in that area up to 1937 -- the use of heat treatment and aging for strength, the introduction of silicon alloy, and the process for coating alloys with aluminum -- the first two were the work of men outside the aluminum industry. The obvious proliferation of products from the industry in more recent years may be attributed to the change in industrial concentration.

The steel industry is another highly concentrated industry. The methods of steel-making are generally what they were at the turn of the century with progress only in terms of size, the refinement of present techniques, and the increased use of instrumentation. Of the two major innovations which have occurred -- continuous hot strip rolling and continuous casting -- the former was introduced by a small newcomer in the industry and the latter was the

14Jewkes, op. cit., p. 169.
work of a German individual inventor. Moreover, a historical study of the steel industry found that the small steel companies have been more productive in developing and adapting new techniques than have the larger companies. The largest, United States Steel, has been notably slow in this respect.

The evidence suggests that monopoly power is not an incentive to create or introduce invention, in spite of some rather foolish statements to this effect. Monopoly is the reward for innovation, not the incentive. Patent protection for the individual or small business should induce the creation of further invention by these sources. Yet the Supreme Court has not been inclined to insure patent protection since the anti-monopolistic days of Thurmond Arnold. In holding this position, the court may actually be encouraging concentration rather than competition.

15Ibid., p. 169.
16Gertrude Schroeder, The Growth of Major Steel Companies, p. 111.
The historical perspective of the last century tends to confirm these opinions. The competitive, free-wheeling days prior to the turn of the century yielded more and better inventions than has the more modern period characterized by greater concentration of industry, advanced technology, organized research, and weak patent protection. In other words, control by the market is greater inducement to innovate than control of the market, in spite of the greater risk and uncertainty involved in the former case. Yet the trend is in the opposite direction as innovation becomes more the product of large firms.

5. Reduced rate of invention. The measure of inventive activity that is used most frequently is the figure for patent applications or awards by the U.S. Patent Office. These figures offer about the only quantitative measure of inventive effort, but are themselves suspect on several counts.

For one thing there is no way of knowing how the standards necessary to receive a patent have varied over the years. Nor is there any way of knowing what percentage of new ideas are never even brought to the patent office in the form of patent applications. In addition, there are certain forces which will underestimate the degree of inventive activity reflected in patent awards and others which will overstate it.
The ratio of patent awards to inventive activity is lowered to the extent that (a) science and technology are more complex, requiring a longer time to arrive at a patentable idea; (b) it takes the present patent office longer to process patent applications; (c) larger firms give greater attention to unpatentable small improvements.

The ratio is raised to the extent that (a) corporations proliferate minor inventions just to block competition; (b) group research can give patent ideas a "big push" and thus shorten conception to patent time; (c) individuals and firms are better able to afford the costs of patenting their ideas and better informed about patent processes.  

In spite of these weaknesses, patent statistics are an indication of innovative activity. Table 23 shows the growth in population and number of yearly patents awarded from the start of the U.S. Patent system in 1790 until 1957. The table and Figure 12 also show the number of patents issued yearly per million persons of population.

The patent office publishes figures for patents applied for and patents granted but the figures on patents granted are probably a more accurate indicator of inventive activity than patent applications for several reasons.

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Column 3-- Col. 2 - Col. 3, expressed at 10^-6.
FIG. 12. Patents per Capita.
First, patent application figures are not available for the earlier years. Second, patent application figures are overstated prior to 1940 since before that time an applicant could allow his application to lapse and then reapply. Third, application figures before 1880 include design patents and prior to 1877 include reissue patents. These reissue patents occurred from 1836 until the 1861 patents expired, when it was possible to get an extra seven years extension on the then 14 year patent. The patent period is now for seventeen years with extension only by an act of Congress. Finally, patents granted are probably a better measure of new innovation since they are judged upon their novelty and originality and thus represent new innovation. From 1793 to 1836, however, no such test was made and proper application was the only requirement. Patents awarded during those years are somewhat overstated for that reason.20

As illustrated, the number of inventions per million persons remained fairly stable from the late 1800's until the late 1840's. After that time both to total number of patents and the rate per capita experienced a sharp increase, corresponding to the take-off for the country as a whole. The patent rate continued at about the same

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high level from around 1870 until the early 1930's, peaking in 1915 and 1932 at 428 patents per million persons. Both the number and rate of patents have declined substantially since that time. In other words, as the nation reached maturity, innovation as measured by patent awards declined.

Nor is this experience unique to the United States. For every nation the number of patents issued per capita has tended to level off and perhaps decline as each passed through the rapid industrialization phase. The conditions that support the period of rapid growth are also favorable to innovation, while growing maturity tends to restrict innovation. This tendency is rather startling when one considers the tremendous increase in corporate and government expenditures for research and the number of technically trained people in the United States today.

The growth of different kinds of innovation is apparently also diminishing. One study of the classification system used for patent statistics showed that after a rapid rise at a compound rate to about 1924, the number of classes necessary to classify new invention have increased at a decreasing rate. The growth of main classes has

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21 Schmookler, op. cit., p. 183.
almost stopped. In fact, according to the author, "the broad outline of technology may now be at hand." 22

Thus it may be true that the normal movement toward maturity for an economic system as a whole is not conducive to the production of innovations in quantity either. The more rational organization of research into institutional staff groups apparently limits its effectiveness. Since recourse to individual inventors is not completely practical, it may be necessary to develop new ways of managing the research function. 23

**Innovation and Firm Growth**

If the previous discussion is an accurate description of the relationship between innovation and national growth, and if it is assumed that the characteristics of growth are similar in nations, industries, firms, and other economic institutions, then the following relationship


23 That present methods are apparently not satisfactory is suggested in a study of research activities in 70 companies by Booz, Allen, and Hamilton. The consulting firm found that "half of all the problems tallied in the survey were concerned with organization, and 85 per cent of the companies in the survey identified at least one of their three most important problems in this area." *Op. cit.*, p. 23.
should exist between innovation and growth in the individual firm.

a) The conditions for the introduction of an innovation are better during the early part of the second stage than they are as the third is approached. Innovation in a rational structure of the third stage is more often an improvement or refinement within the existing product base.

b) The growing firm tends to overlook outside sources of innovation as it develops its own research function. It generally employs scientists and technologists who are skilled in the application of present knowledge, but who may be limited in their ability to make new discoveries.

c) Much of what passes for inventive effort in research units of rational organizations is actually development effort.

d) the greater the control that the firm has over its market, the less will be its likelihood of producing major inventions.

In the light of this analysis it would be wise for firms to review their policies on innovation and invention. For example, selection qualifications for research workers should not necessarily require college degrees in technical areas. Corporate bodies should strengthen communication ties with outside inventors. The difference between
inventive effort and development effort should be clarified. The firm should differentiate between mere additions to the product line and the formulation of a new growth cycle.

In the rational organization structure, then, the men of ideas, the innovators, are introduced in the form of staff. If these staff men are to make their greatest contribution to the continued growth of the firm it should be recalled that innovators and their immediate environment cannot be cast into the same mold as the scientific line manager and his rationally organized organizational unit.

Risk and Uncertainty

It has been pointed out that the growth cycle is a function of disequilibrium introduced in the form of an innovation by an entrepreneur. Thus the innovation, the uncertainty, and the disequilibrium must be viewed as parts of a whole, instead of isolated parts, as is customary in economic profit theory. If they are not taken together, they lack empirical historical support, for innovators and executive leaders have more often showed caution than boldness in introducing industrial change. These men, preferred instead, to move slowly so that the uncertainty of the action could be reduced.\textsuperscript{24}

\textsuperscript{24}See, for example the study by W. Paul Strassman of industrial development before 1900. This type of innovation is that of the rational firm, carefully planning its change, not the entrepreneur exploiting the growth potential
Since the entrepreneur's willingness to move boldly to exploit his opportunity requires considerable risk and uncertainty, it is important to explore the reasons for his seemingly uncommon behavior. One must first clarify the meaning of risk and uncertainty, for these terms are used in quite different ways by various writers. The definitions which appear to be most acceptable are those used by Frank Knight: risk, as it is used here, means "a quantity susceptible of measurement": that is, it is measurable probability of potential gain or loss. Uncertainty, on the other hand, is an unmeasurable possibility of gain or loss. 25

Risk is subject to an objective statement of probability. This probability is of two types. The first is deductive a priori probability, which is based upon a logical inference from general knowledge or experience. The second is statistical probability based upon empirical measurement. 26 In both cases risk is subject to advance planning. Once determined the expected loss or gain may be incorporated in the firm's cost structure, either by


26Ibid., p. 224.
assuming the cost itself, or by turning the risk over to a specialist like an insurance company.

Uncertainty is not subject to the same objective measurement as risk. It is an estimate of the future, a subjective prediction. Uncertainty arises because the businessman must commit resources in advance of product use. They must produce goods in anticipation of demand and must generally pay fixed rates to factors of production regardless of the amount or value of the product produced.

To the extent that the parameters (characteristics) of uncertainty are known or may be controlled, it becomes a risk. For example, company sales on a particular product next year are more a predictable probability and less a mere chance of windfall gain or loss to the extent that the company (a) knows the characteristics of consumer demand, or (b) can fix demand by making the product a specialty item, or (c) can control the kind and amount of substitute products offered by others. In spite of this planning and control the firm is unable to predict the future completely and so is still subject to all of the uncertainty of consumer taste, conditions of the market, and general economic conditions.

A growing firm, with no change in risk, would find itself with a constantly increasing degree of uncertainty.
Uncertainty would arise naturally from the committed resources and degree of futurity. Uncertainty would be compounded by the fact that a growing need for coordination also necessitates an increasing dependence of one function on another. Thus the degree of uncertainty, that is, the possibility of gain or loss, probably increases at a compound rate as the firm grows. To the extent that the firm can plan for uncertainty in the form of known risk, however, both the uncertainty of the future and the problems of coordination are reduced.

With this clarification of meaning, risk and uncertainty may now be related to the stages of growth. In the first stage risk and uncertainty are at a minimum since change is generally absent. The firm is in a stage of equilibrium, untroubled by innovation or rapid change. Since the small business leader tends to be pessimistic about the future, he looks with disfavor upon the idea of innovation, for he sees the possibility of loss more than the possibility of gain.

In the second stage, considerable risk and uncertainty are present. The innovation introduces uncertainty and disequilibrium at the take-off. Moreover, as the firm grows to overcome the initial disequilibrium, more and more resources are committed to the future. In spite of this uncertainty the entrepreneur is willing to rise to the
challenge. The reason for his willingness to do so has already been suggested by his optimistic estimate of future gain. He is willing to accept the risk and uncertainty involved because of the potential rewards of such actions.

That there are persons particularly suited to meet the challenges of uncertainty and risk such as those required of entrepreneurship has been supported empirically in recent research by General Electric. Two groups of thirty-six business leaders each were given a business game to play. One group played under an "ambiguous" (uncertain) condition, the other under a structured (informed) condition. Tests were given to each member to measure the "need for achievement," the "fear of failure," and the degree to which the participant was willing to make decisions involving risk. In the original research no distinction was made between risk and uncertainty, the term risk referring to either in the research model. However, the distinction between the "ambiguous" and the "structured" groups corresponded closely with the definitions given here for uncertainty and risk.

Specifically, the study sought to prove that:

1. Persons with high need for achievement and low fear of failure motivation will make business

\[\text{1. Persons with high need for achievement and low fear of failure motivation will make business}\]

decisions that involve an intermediate level of risk, whereas persons with low need for achievement and high fear of failure will be more likely to make either very safe decisions or to take very speculative risks.

2. The relationship between motivation and risk-taking tendencies cited in 1 above will be stronger in relatively ambiguous situations (where little information is provided on which to base decisions) than in relatively structured situations (where a good deal of information is provided).  

Results showed that "high scores on 'need for achievement' and low scores on the 'fear of failure' test were found to be significantly related to preference for intermediate level of risks on the business game for the 'ambiguous' condition of play." But that "the motive measures did not predict risk-taking behavior on the business game for the 'structured' condition of play."  

It seems worthwhile to note that when interpreted in terms of the difference between uncertainty and risk, the research showed that certain persons were better able to operate under conditions of uncertainty, but that where risk could be specified in terms of probability, the motivating factors were not need for achievement or fear of failure. More likely the willingness to undertake risk (rather than uncertainty) would be correlated with management ability and effectiveness.

28 Ibid., p. 5.
29 Ibid., p. 9.
To recast this information in terms of our previous analysis, the entrepreneur in the second stage of growth has particular talent to deal with uncertainty. This talent is essential to get things started, but can become an increasing burden as the organization grows unless he is willing to take steps to transfer part of the growing uncertainty into calculated risk. In other words, stage two is characterized by a growing uncertainty, part of which must be transferred to rational risk by the time the firm enters the third stage of growth.

The scientific manager and the rational organization structure work in opposition to the growing uncertainty. Both line and staff units are devoted to planning, organizing, and controlling business functions with a minimum of risk and uncertainty. Forecasts are made and plans revised with the objectives of reducing uncertainty to a calculated risk.

Thus there is considerable difference between innovations introduced under the conditions of the take-off and those introduced under rational conditions by scientific managers. The more rational the structure the more inclined will be its management to avoid uncertainty. But by waiting to define all of the parameters of the situation, the rational firm may make a firm too careful with respect to the introduction of new products. For example, one
consulting firm advises that "... management's purpose is to beat the probabilities [that uncertainty is associated with high profit] by finding those rare ideas that are both low risk and high profit." One recalls, in comparison, a Ford, a Carnegie, a Bessemer, or a Durant.

Summary

1. The purpose of this chapter was to clarify the meaning and relationship to growth of invention, innovation, risk, and uncertainty. Innovations occur through an innovation process which includes thinking of the new idea, developing and adapting it to business use, and utilizing the idea in actual operations. The process becomes considerably more complex in a large rational firm, though the role of invention may be overlooked.

2. A comparison of national growth in innovation to business innovation is revealing. By comparing the rate and characteristics of innovation in the United States during the first half of its growth stage with similar factors in the second half, important lessons are learned which may be applied to the study of the growth cycle of the individual firm. This study shows that as the nation moved toward maturity the following changes took place:

   a) The number of major innovations declined.

---

b) Inventions came more from organized institutional research and less from individuals.

c) Inventions became more a product of those trained in science and technology.

d) Invention was introduced to a greater extent under conditions of market control, and were less controlled by the market itself.

e) The rate of total invention per capita began to decline.

3. The lessons learned in the study of national growth and innovation have important implications with respect to growth of the individual firm. They suggest the following:

a) Innovation is facilitated by the conditions of disequilibrium which exist in the early part of the second stage.

b) The growing firm tends to overlook important outside sources of innovation as it develops its own research function.

c) Much of what passes for inventive effort in research units is actually development effort. This development is more the specialty of trained technicians than is the conception of new ideas.

d) The greater the control that a firm has over its market, the less will be its likelihood of producing major innovations.
4. The growth cycle is also characterized by a growing uncertainty and risk. Risk is a measurable probability of gain or loss; uncertainty is a subjective estimate. Risk is derived from either a priori probability or statistical probability. Both types require planning. Uncertainty, on the other hand, cannot be measured. As the firm grows uncertainty develops, having been introduced in the form of an innovation by an entrepreneur. This uncertainty becomes a statement of risk as scientific management and a rational organization structure are introduced.

The entrepreneur is willing to accept uncertainty for the reward which he optimistically pursues. The executive leader reduces uncertainty by rational calculation of risk.

The analysis in this chapter should help to explain the relationship between invention, innovation, and development to the various stages of growth. For innovation to be successfully promoted in the second stage of growth an entrepreneur and the necessary rewards to his efforts should be present. As the firm reaches maturity it should have suitable staff support to plan for further growth. Care should be taken to insure that the staff does not spend its efforts entirely upon development, to the exclusion of new product research, and that the existence of staff help does not preclude a search outside the firm for new ideas.
The distinction between risk and uncertainty also points to the need for careful planning by the well-managed firm. A firm may exist temporarily by operating within the uncertainty area so long as the exploitation of its innovation provides it with an unusual advantage in the market. It cannot reach well-managed maturity, however, unless it develops management and staff support which can calculate risks involved through careful planning. Such calculated risks become the basis of careful pricing, sound market tactics, and a control of expenses. A continuing successful business must eventually have rational planning and control if it is to survive.
Purpose of the Chapter

The purpose of this chapter is to clarify the difference between economies of size and economies of growth and to relate each of these to the problem of investment. Investment in growth, it is suggested, differs in kind and purpose from investment in size. The chapter also brings together two loose conceptual ends in the theory of growth -- the relationship of profits to uncertainty and the relationship of profits to growth.

These considerations will then be compared with empirical evidence.

Prior to this point it has been difficult to unwind the tangle of strands relating to size and to growth. The two are quite different, however, for size is a measure or state while growth is a process.¹ It may be recognized, for example, that while a growing firm receives the economies of both size and growth, a stationary firm

¹Penrose, The Theory of Growth of the Firm, p. 88. Mrs. Penrose deserves the credit for making the first precise statement of that difference.
benefits only by its size. Or, to put it differently, there are certain economies which accrue to a firm while it is in the process of growing which are lost once the process stops, leaving it with only economies of size. Thus a growing small firm may compete effectively with a large stable firm, but a small stable firm may not.

**Economies of Size and Economies of Growth**

Just what is the difference between economies of size and economies of growth? The former are economies accruing to the firm from its measured state alone, resulting in greater efficiency as the state is increased. As was the case with organization structure, no satisfactory measure of size really exists, although measures commonly used are number of employees, total investment, or sales. Examples of economies of size, to be discussed shortly, are technological economies, managerial economies, economies of power, and financial economies.

Economies of growth, on the other hand, accrue to the firm through the initiation of a growth cycle. Merely increasing factor inputs to increase output would not be considered growth in this sense, since few, if any, economies of growth would result. The various economies of growth may be seen throughout the previous chapters. Further examples of growth economies are economies of
factor prices, economies of resource use, and economies of natural change.

1. The first example of economies of size are technological economies.² Technological economies are those which permit a larger production of output at a lower average cost or which, contrasted with smaller firms, permit the same production at a lower average cost. They stem from the greater opportunity which is fulfilled by the use of automatic transfer devices, automatic programming equipment, special purpose machinery, straight line production methods or specialized labor. Thus, the size of an automobile factory determines its ability to realize technological economies. And, in that product, the economies are apparently substantial enough to permit long distance transportation of raw materials and finished products, and to restrict the field to large producers.

A second type of economy is managerial and organizational. This economy is created when a larger size permits a greater degree of functional specialization in both line and staff units. In other words, the firm is able to benefit from greater division of executive labor. It is also able to benefit from specialization of operative

²Ibid., pp. 89-95. Technological and managerial economies are discussed in this source, but the other two are not.
labor, though the latter is probably as much technological as it is managerial since specialization of labor makes mechanization increasingly possible. The difference between this and the growth process is that growth produces a need for rational organization and management, but size determines the extent to which functions may evolve.

Managerial economies are also created by spreading overhead costs. For example, a production control staff may be able to plan for a volume of 100,000 units as well as it did for a volume of 75,000 units, while reducing the planning cost per unit. Research costs may be similarly reduced. The economy may be illustrated in another sense when the vertical or horizontal integration of the firm permits the reduction in the combined administration or the integration of staff. Such economies will be beneficial to the firm if they occur in many functions; individually, of course, they are small.

A third type of economy of size may be seen in the economies of power. Assuming that factor markets have no effective control of their prices, a larger size may permit monopsony (buying) power on the part of the buying firm. Its power may permit the purchase of labor, materials, goods, and equipment under more favorable conditions than would be granted a smaller firm. On the other hand, the same will be true if the firm has monopoly
power on the selling side. Purchasers of goods or services produced by the firm, unless in possession of some countervailing power, would be at a disadvantage when dealing with the firm.

Economies of power may also be present in terms of a powerful corporate image. Consumers may be impressed by the prestige of dealing with a large firm. Government officials listen more closely to the requests or opinions of leaders in giant corporations.

A final example of economies of size may be seen in financial economies. These are probably an offshoot of economies of power, though not completely. Thus, the large firm is often better able to finance its operations from unsecured borrowing at lower interest rates. It is able to sell securities more easily than the smaller firm since its size in the market and in assets adds to the interest of investors. The particular effect of size upon profits will be discussed shortly. Let us now consider some examples of economies of growth.

2. The first example of economies of growth is shown in the economies of factor prices. One of the factors which contributes to the excess profits which the firm receives during its period of rapid growth is the tendency for factor prices to lag behind the prices received by the firm for its goods. Land, labor, and capital are priced
at a rate corresponding to prevailing locality or industry rates, even though the introduction of an innovation produces excess profits to the firm. Furthermore, if the entrepreneur is successful in convincing his employees that they must accept some sacrifice in their income in the short run in order to meet optimistic longer run goals, then the reduction in costs may be even greater.³

As the firm grows to maturity and develops a rational structure factor costs may increase. Employees find that their expectations of rapid advancement or rich reward were too optimistic and require the security of pension benefits and a comfortable, competitive wage. The larger firm is also more visible to labor unions who may prey upon the discontent engendered by the transition to organize employees and increase wages. Capital costs may increase if greater reliance is placed upon external financing and if the slower rate of growth decreases the marginal efficiency of capital. On the other hand, selling

³ Such is the case when persons are willing to forego a low present reward, easily attained, for the promise or expectation of a great reward in the future. It is particularly evident in firms which are in the early stages of their growth cycle, when firms attract excellent employees on the promise of "opportunity" or reward in the future. Such a condition occurred in four of the five firms in the present study, among managerial or operative employees, or both. For a discussion of the research on expectations, see R. M. Stogdill, Individual Behavior and Group Achievement (New York: Oxford Press, 1959), chap. 4.
prices are ordinarily reduced by this time as the firm faces competition with others who copy its innovation. It must rely upon internal efficiency and scientific management for its profits instead of the temporary exploitation of its early advantage.

A second type of growth economy may be seen in economies of resource use. Economies of resource use occur because the firm is forced to acquire resources in discrete amounts, providing an unused portion of services along with those that are used. Management services, too, are acquired with unused portions in reserve, and, in this case, tend to grow as management gains experience with the product base or lengthens its horizons. At any time, then, a firm has an unused pool of productive services -- a pool of services which increases with growth. "It follows, therefore, that as long as expansion can provide a way of using the services of its resources more profitably than they are being used, a firm has an incentive to expand; or alternatively, so long as any resources are not used fully in current operations, there is an incentive for a firm to find a way of using them more fully."\(^4\)

\(^4\)Penrose, op. cit., p. 67. This point is the foundation of Penrose's theory, though she never makes completely clear the extent to which expansion to meet these services is limited.
The growth of productive services may be illustrated in the experience of Company E. That firm found itself with an increasing amount of waste foam rubber left over from stamping operations. It was decided to grind the foam into small particles, package the ground foam rubber, and sell it for filling cushions. The foam was ground by hand until a grinding machine was acquired. With the adequate supply of uniform ground foam, the firm was able to broaden the product base by producing and marketing a chair cushion filled with blown ground foam. At the present time the firm has such a market for its ground foam rubber that it is buying fresh raw foam and grinding it itself.

Growing managerial services which provide economies of resource use are discussed widely in the literature of management. Experience and thought develop over time a greater knowledge of the company, the peculiar type of technical skills utilized in the product base, and the management and organizational methods which tend to provide successful business operation.

The third type of economy of growth may be classified as the economy of natural change. The concept is best illustrated when viewed in the negative sense, that is, in terms of the diseconomies of not growing naturally. To illustrate: without the presence of the entrepreneur
at the take-off, the firm may not fully exploit the unique advantage to profits and growth that occurs when sales opportunities increase upon a low asset base. And, again, the firm will face serious morale problems in the latter part of the growth stage if it does not make the transition from a heterogeneous group supported by wide spans to a homogeneous group supported by narrower spans and a management philosophy.

The firm is thus like a living organism in that it follows a natural pattern during its growth cycle. Anything which causes a deviation from that pattern may be expected to militate against peak efficiency. Sometimes the firm can compensate for deviations from the natural pattern, as was the case in firms studied earlier which compensated for an overly rapid employment rate in the early years of growth with a slower rate during later years. In other cases the firm may not be able to compensate, and received permanent damage, as was the case when firms became stunted due to lack of management or rational organization structure.

In sum, the economies of size are by no means the same as the economies of growth. While the growing firm
will experience economies of size as well, the stable firm will not experience these economies:

We have, therefore, an interesting paradox: The growth of firms may be consistent with the most efficient use of society's resources; the result of past growth -- the size attained in any time -- may have no corresponding advantages. Each successive step in its growth may be profitable to the firm and, if otherwise underutilized resources are used, advantageous to society. But once any expansion is completed, the original justification for the expansion may fade into insignificance as new opportunities for growth develop and are acted upon. In this case, it would not follow that the large firm as a whole was any more efficient than its several parts would be if they were operating (and growing) quite independently.

In terms of growth policy this realization is important, for it points to several alternatives open to the firm which wants to grow, or, at least, to compete with growing firms. These alternatives are discussed in a plan for growth in the next chapter.

Investment in Growth

Having established that there is a difference between size and growth, it is now possible to explore the implications of this difference in terms of investment and profits. Once started, the growth cycle should generate its own funds for expansion, since the rate of expected profits will be high and the marginal efficiency of capital will attract investors. Investment in the take-off is less

\[ ^5 \text{Ibid., p. 103.} \]
simple. While there are no figures which show the source of funds for take-off it is probable that the major sources are trade credit and owner equity. This impression is supported by the fact that in 1959 some 73.8 per cent of the investment in manufacturing corporations came from these two sources.\textsuperscript{6}

The role of trade credit and owner equity is also illustrated in the source of funds for take-off in the five companies in the present study. While these few firms do not constitute a sufficient sample to permit statistical generalization, consideration of the sources is helpful. Company A, for example, financed its take-off with trade credit and discounted credit paper. Company B also relied entirely upon trade credit and conditional sales contracts discounted at banks. Company C traded equity in the form of stock for investable funds. Company D relied upon owner equity, part of which was gained through the addition of a monied partner. Finally, in Company E the proprietor utilized equity funds furnished by his wife. Once the growth was under way, all firms relied heavily upon reinvestment of earnings.

The high earnings necessary for reinvestment occur during the most rapid growth of the firm. That is, within

the growth cycle profits tend to follow the rate of growth: they are highest when the rate of growth is highest.\(^7\)

Where innovations can be copied or where patent infringement is not a problem, and assuming that the product sales equal the total sales of the firm, then the common pattern is for profit margins to peak near the mid-point of the sales cycle. Factor costs lag, and the firm moves largely unchallenged to exploit its unique position. Beyond the midpoint, however, profits are driven down by competition and substitutes and by rising factor costs.

Certain offsetting factors prevent the elimination of profits at the end of the cycle, however. First, there are economies of size which work in favor of profits. Then, there are the efficiencies of a rational organization which gradually take over as the exploitation of the market is ended. Cost controls, budgets, plans, and procedures all work to reduce costs and increase profits.

When the sales cycle does not correspond with the growth cycle but, instead, is simply one of a number of products introduced in the product base the situation is

\(^7\)Gertrude Schroeder found that in steel companies the return on investment rose when the rate of growth was rapid, declined when the rate of growth declined; The Growth of Major Steel Companies, p. 180. This pattern is also reported for single products in Booz, Allen, and Hamilton, Management of New Products, p. 6. Similar, though qualitative, evidence appeared in the companies in the present study.
slightly different. In such cases the cycle for each product would peak at some point, as would the product base as a whole. Profits from each product would similarly be highest during the most rapid growth, and profits for the firm would be highest when the product base grew most rapidly.

A partial reason for the correlation of profits with growth is indicated in the ratio of sales to assets during the growth of a firm. The same measure has been used in studies of countries and industries in the form of an output-capital ratio, or the reciprocal, the capital-output ratio. An increase in the sales to asset ratio indicates increasing profit opportunity, since it is derived from a rise in the efficiency of invested funds. A decrease in the ratio would similarly indicate a decrease in the efficiency of investment. If it could be found that during the life cycle the ratio first increased and then declined then it could be argued that once maturity is reached, it would be more efficient to generate a


10 As the sales-asset ratio increases the spread between the break-even point and sales level might be expected to increase.
new growth cycle than to simply expand growth measures by a factor increase.

The patterns of the sales to asset or the corresponding output-capital ratios for the firms studied and for nations and industries is mixed, however. Nations appear to have a decreasing ratio as they grow. The manufacturing and mining industries have had a decrease during the early stages of their growth cycle and an increase in the later stages. Four of the five firms studied here showed a definite increase in the ratio during all or part of their growth stage. The remaining firm has been inconsistent in other patterns as well and might be discounted here as an exception occurring because of faulty or inadequate growth. The rates expressed in terms of sales per dollar of net assets are shown in Table 24.

As shown in Table 24, companies A, C, and E had a consistent increase in the three year moving average of the sales-asset ratio during the early years of their growth cycles. Company B experienced a decline in the ratio during the first four years, but the ratio increased steadily until maturity after that point. Only firm D reversed the predicted trend, perhaps contributing to the eventual collapse of the firm in 1955.

The degree to which the growth pattern is affected by cyclical economic conditions may also be assessed. One may
<table>
<thead>
<tr>
<th>Company</th>
<th>Year</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>(1.05)^a</td>
<td>(3.42)</td>
<td>(1.26)</td>
<td>(3.43)</td>
<td>(2.93)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.28</td>
<td>3.12</td>
<td>1.43</td>
<td>2.85</td>
<td>3.47</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1.70</td>
<td>3.00</td>
<td>1.78</td>
<td>2.53</td>
<td>3.65</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2.29</td>
<td>2.58</td>
<td>2.35</td>
<td>2.13</td>
<td>3.82</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2.52</td>
<td>2.66</td>
<td>2.65</td>
<td>2.36</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>2.36</td>
<td>2.84</td>
<td>2.75</td>
<td>2.56</td>
<td>3.63</td>
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<tr>
<td></td>
<td>7</td>
<td>1.78</td>
<td>3.01</td>
<td>2.67</td>
<td>1.91</td>
<td>3.79</td>
</tr>
<tr>
<td></td>
<td>8</td>
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<td>2.80</td>
<td>1.65</td>
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<tr>
<td></td>
<td>9</td>
<td>(1.27)</td>
<td>2.99^b</td>
<td>3.06</td>
<td>1.44</td>
<td>3.65</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>2.62</td>
<td>3.32</td>
<td>(1.71)</td>
<td>3.86</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>2.42</td>
<td>(3.44)</td>
<td></td>
<td>3.62</td>
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<tr>
<td></td>
<td>13</td>
<td>2.01</td>
<td></td>
<td></td>
<td>(3.02)</td>
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</tr>
<tr>
<td></td>
<td>14</td>
<td>1.81</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>(1.72)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

^aFigures in parentheses are mean of first two or last two years in the series.

^bFirst year of maturity.
determine this relationship by examining the effect upon
the sales-asset ratio by the recessionary periods of 1948-
1949, 1953-1954, and 1957-1958. The four firms showing the
normal relationship in sales to assets passed through a
total of eight recession periods. Of these eight periods,
six showed an increase in the average sales-asset ratio
during the recessionary period and only two experienced a
decline. Both of the latter were the second recession
period experienced by each firm, the first, in each case
showing an increase in the ratio during the early stage
of growth. Also, in one case the ratio decline in a period
where heavy investment in assets had not yet resulted in
responding sales, and the other was a minor decline within
a longer-run increase in the ratio.

The limited evidence presented supports the following
hypotheses: first, that the sales-asset ratio will increase
after the initiation of the growth cycle, thereby providing
profit opportunity which rewards uncertainty and encourages
the entrepreneur to exploit his position. An increasing
supply of investable funds is provided with which to
finance further expansion. This trend may be expected to
provide profits until the external and internal forces
described earlier militate against the benefits of growth.
Secondly, that the growth cycle is not seriously affected
by short-run cyclical changes in the total economy. The
power generated within the firm's growth cycle generally permits an increase in the efficiency of investment even when the rest of the economy is in decline. Finally, that the difference in the output-capital (or sales-asset) ratio experience in national, industry, and firm growth is in part a matter of size. In industries, for example, an initial buildup of capital must take place before economies of growth are experienced. In the small firms studied here, on the other hand, the initial buildup of investment was unnecessary because of the opportunity to finance investment from current earnings. This size factor is explored in more detail in the following section.

**Investment in Size**

With the characteristics of growth and investment in mind it is interesting to compare the characteristics of size and investment. A striking difference between growth and size occurs with respect to profits. While there is evidence that profit rates are correlated with growth rates, there is also evidence that profits are correlated with size as well. For example, Table 25 shows the profits per dollar of sales in manufacturing corporations arranged by size in 1959. As size increased, profits also increased up to firms with less than $50 million in assets. The profit rate then leveled off to firms of less than $1000 million, increasing again in firms over that size.
## TABLE 25

PROFITS PER DOLLAR OF SALES IN MANUFACTURING CORPORATIONS, BY ASSET SIZE, 1959

<table>
<thead>
<tr>
<th>Asset Size</th>
<th>Before Taxes</th>
<th>After Taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>All manufacturing corporations,</td>
<td>8.8</td>
<td>4.8</td>
</tr>
<tr>
<td>except newspapers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $1 million</td>
<td>3.2</td>
<td>1.7</td>
</tr>
<tr>
<td>$1 million to $5 million</td>
<td>5.4</td>
<td>2.6</td>
</tr>
<tr>
<td>$5 million to $10 million</td>
<td>7.2</td>
<td>3.5</td>
</tr>
<tr>
<td>$10 million to $25 million</td>
<td>8.5</td>
<td>4.3</td>
</tr>
<tr>
<td>$25 million to $50 million</td>
<td>8.8</td>
<td>4.4</td>
</tr>
<tr>
<td>$50 million to $100 million</td>
<td>9.8</td>
<td>5.1</td>
</tr>
<tr>
<td>$100 million to $250 million</td>
<td>9.8</td>
<td>5.1</td>
</tr>
<tr>
<td>$250 million to $1000 million</td>
<td>9.4</td>
<td>5.1</td>
</tr>
<tr>
<td>$1000 million and over</td>
<td>13.5</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Thus we recall an earlier statement that a small growing firm may compete effectively with a large stable firm, while a small stable firm may not.

The extent to which financing methods differ among firms of different size may be determined by considering the liabilities and stockholders' equity of manufacturing firms, as shown in Table 26. This table shows liabilities and equity as a percentage of total assets in firms arranged by asset size. Since total assets equal total liabilities plus net worth, the figures show the sources of funds with which the firms of various size finance the cost of their assets. Some financial economies of size discussed earlier in this chapter are apparent in the table.

As indicated, smaller firms rely more upon short term bank loans than do larger firms. Firms with less than one million dollars in assets utilize about 5 per cent from this source; the percentage increases to slightly more than 6 per cent in firms up to five million in assets and decline thereafter to zero in the largest firms which can finance short term needs from internal funds. The importance of trade credit in small firm financing may also be seen. In these figures trade credit accounted for 19 per cent of assets in firms under one million dollars in assets, declining rapidly to 8.2 per cent for firms in
<table>
<thead>
<tr>
<th>Item</th>
<th>All</th>
<th>$1</th>
<th>$5</th>
<th>$10</th>
<th>$25</th>
<th>$50</th>
<th>$100</th>
<th>$250</th>
<th>$1000</th>
<th>$ and Over</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Short term loans from banks</td>
<td>2.7</td>
<td>5.1</td>
<td>6.1</td>
<td>4.6</td>
<td>4.2</td>
<td>3.6</td>
<td>3.0</td>
<td>3.1</td>
<td>2.6</td>
<td>0.0</td>
</tr>
<tr>
<td>2) Advances and payments from U.S. Government</td>
<td>0.7</td>
<td>0.0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.2</td>
<td>0.4</td>
<td>0.8</td>
<td>0.7</td>
<td>2.2</td>
<td>0.1</td>
</tr>
<tr>
<td>3) Trade Accounts and Notes Payable</td>
<td>8.2</td>
<td>10.0</td>
<td>11.0</td>
<td>8.2</td>
<td>7.6</td>
<td>7.2</td>
<td>6.4</td>
<td>6.9</td>
<td>7.2</td>
<td>6.6</td>
</tr>
<tr>
<td>4) Federal Income Tax Accrued</td>
<td>4.4</td>
<td>3.2</td>
<td>4.4</td>
<td>4.4</td>
<td>4.6</td>
<td>4.6</td>
<td>4.8</td>
<td>4.9</td>
<td>4.0</td>
<td>4.7</td>
</tr>
<tr>
<td>5) Installments due on long-term debt</td>
<td>0.8</td>
<td>1.8</td>
<td>1.3</td>
<td>1.0</td>
<td>1.2</td>
<td>1.0</td>
<td>1.1</td>
<td>0.7</td>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>6) Other current liabilities</td>
<td>4.5</td>
<td>5.9</td>
<td>5.2</td>
<td>5.1</td>
<td>4.9</td>
<td>4.3</td>
<td>4.6</td>
<td>4.8</td>
<td>3.8</td>
<td>4.4</td>
</tr>
<tr>
<td>Total current liabilities</td>
<td>21.4</td>
<td>35.0</td>
<td>28.1</td>
<td>23.5</td>
<td>22.5</td>
<td>21.0</td>
<td>20.5</td>
<td>21.0</td>
<td>21.0</td>
<td>16.1</td>
</tr>
<tr>
<td>7) Long term debt due in more than one year</td>
<td>12.1</td>
<td>10.5</td>
<td>7.4</td>
<td>7.3</td>
<td>9.0</td>
<td>11.0</td>
<td>13.2</td>
<td>14.5</td>
<td>16.3</td>
<td>10.2</td>
</tr>
<tr>
<td>8) Other non-current liabilities</td>
<td>1.0</td>
<td>0.8</td>
<td>1.0</td>
<td>0.7</td>
<td>0.8</td>
<td>0.8</td>
<td>0.7</td>
<td>1.1</td>
<td>0.4</td>
<td>1.7</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>34.4</td>
<td>46.3</td>
<td>36.4</td>
<td>31.4</td>
<td>32.2</td>
<td>32.8</td>
<td>34.4</td>
<td>36.7</td>
<td>37.2</td>
<td>28.0</td>
</tr>
<tr>
<td>Item</td>
<td>All</td>
<td>$1 to $5</td>
<td>$5 to $10</td>
<td>$10 to $25</td>
<td>$25 to $50</td>
<td>$50 to $100</td>
<td>$100 to $250</td>
<td>$250 to $1000</td>
<td>$1000 and Over</td>
<td></td>
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<tr>
<td>---------------------------------------------------------------------</td>
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<td>-----------</td>
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<td>-------------</td>
<td>--------------</td>
<td>---------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>9) Reserves not reflected elsewhere</td>
<td>1.2</td>
<td>0.2</td>
<td>0.4</td>
<td>0.8</td>
<td>0.6</td>
<td>0.8</td>
<td>1.0</td>
<td>1.2</td>
<td>1.9</td>
<td>1.4</td>
</tr>
<tr>
<td>10) Capital stock, capital surplus, and minority interest</td>
<td>26.7</td>
<td>25.8</td>
<td>22.8</td>
<td>23.0</td>
<td>23.7</td>
<td>24.9</td>
<td>26.4</td>
<td>26.8</td>
<td>25.6</td>
<td>30.7</td>
</tr>
<tr>
<td>11) Earned surplus and surplus reserves</td>
<td>37.8</td>
<td>27.8</td>
<td>40.4</td>
<td>44.8</td>
<td>43.4</td>
<td>41.5</td>
<td>38.2</td>
<td>35.4</td>
<td>35.3</td>
<td>39.8</td>
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<tr>
<td>Total Stockholders' Equity</td>
<td>65.6</td>
<td>53.7</td>
<td>63.6</td>
<td>68.6</td>
<td>67.8</td>
<td>67.2</td>
<td>65.6</td>
<td>63.3</td>
<td>62.8</td>
<td>72.0</td>
</tr>
<tr>
<td>Total Liability and Stockholders' equity</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
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*In millions of dollars.*
the five to ten million dollar asset range. Firms of larger size utilize around 6 or 7 per cent in trade credit.

The gap that appears in small firms between the needs for financing early growth and the funds available through trade credit and owner equity appears to be filled through long term debt, for long term debt due in more than one year accounts for 10.5 per cent of assets in firms under one million in assets. It then drops to just over 7 per cent for firms from one to ten million in assets and continues to climb to a peak of 16 per cent for firms from 250 to 1000 million in assets. This increase may be due to growing diseconomies which do not allow sufficient earnings for reinvestment. They are eventually overcome, however, for the percentage of long term debt due in more than a year drops sharply to 10.2 per cent in firms over $1000 in assets. This reduced debt in the largest firms is compensated by increased equity financing since both capital stock and earned surplus are about 5 per cent higher in the largest firms than in the next lower category.

In sum, in manufacturing corporations at least, smaller firms tend to rely more upon debt financing for investment than do large firms. Firms in the smallest category (under $1 million) financed 46.3 per cent from liabilities, 53.7 per cent from stockholders' equity.
The largest firms, on the other hand, financed only 28 per cent from debt, and 72 per cent from stockholders' equity. Larger firms benefit through paying the lowest rates for borrowed capital, are best able to sell unsecured credit instruments, yet are in the best position in terms of profits from size.

**Summary**

When dealing with most growth factors it is difficult to differentiate between economies of size and economies of growth. The growing firm actually benefits by both, though when growth ceases it is left with only economies of size. This chapter seeks to distinguish between the types of economy.

1. Size is a state, often measured by assets, sales, or employment. An increase in size results in technological economies, managerial economies, economies of power, and financial economies. Growth, on the other hand, is a process. Increasing output through greater factor inputs, without initiating a growth cycle, would not be considered growth as used here, since the only increases in productivity would be through size not growth. Typical growth economies are economies of factor prices, economies of resource use, the economies of natural change.

2. Economies of growth cease when growth ceases, so that the firm is left with only economies of size. Small
firms should thus have an incentive to grow, since they benefit by both size and growth economies, while large firms have less to gain. Parts of large firms may initiate a growth cycle however.

3. There is considerable evidence that profits correlate positively with both growth and size. That is, profits are highest when growth is most rapid, and they are highest the larger the firm becomes. Small firms appear to benefit most from growth economies, however, since the sales-asset ratio increases with growth. Increases in size would exert a downward pressure on the ratio, though, for larger size would require a greater proportion of fixed investment.

4. The take-off is financed from equity capital or trade credit, while growth is financed heavily from reinvested earnings. In terms of size, the smallest firms and firms in the middle range also require long term borrowing. The largest firms have a much lower need for borrowing because their size adds to their ability to rely upon equity financing. The largest manufacturing firms rely much more heavily upon equity financing than do the small firms.
CHAPTER XI

AN APPRAISAL OF THE THEORY AND ITS EMPIRICAL SUPPORT WITH RECOMMENDATIONS FOR GROWTH PLANNING

Purpose of the Chapter

The preceding chapters have presented two parallel studies. On the one hand, an analytical growth model has been described. Then, as the growing firm passes through each of the three stages in the theoretical growth model, the evolution of basic management factors has been discussed. The various dimensions of the theory of growth have been demonstrated as being internally consistent, supporting the validity of the model.

But simple theoretical validity is not enough to make the model applicable to real life situations. To do this it must be demonstrated that the assumptions made in constructing the theory are similar to conditions in real life. Thus, the second study of empirical evidence was made to parallel the theory. Assertions made in the theory were demonstrated in real life, either from the historical growth studies of the five companies that were analyzed by the author in depth, or from reliable empirical research. By this means the empirical study has sought to show that
the growth theory has not only validity but applicability as well.

The summary of the growth model has already been described in Chapter IV. More detailed analysis of the growth factors and of empirical evidence has been summarized at the end of pertinent analysis chapters. Thus this final chapter must do more than to simply repeat earlier statements. It must demonstrate the value of these statements. For this reason, the following sections present the earlier material in a somewhat different fashion. First, the conclusions drawn from the analytical growth model concerning the changes in specific factors are presented in a separate section. Statements made are keyed to appropriate pages in the body of the text. Second, conclusions drawn from empirical evidence are similarly presented in the next section. Finally, an attempt will be made to show how the growth theory may be used by a firm to plan for future growth. Thus the theory suggests not only what does happen when a firm grows, but also what should happen if a firm desires to grow.

The Analytical Theory

The growth model sets forth what has been called a growth cycle. This cycle is in three stages: a stage of equilibrium in which the firm has the characteristics of traditional small business; a stage of disequilibrium during
which the dominant characteristics are those of growth and change; and, finally, a third stage of equilibrium which occurs after the firm has worked itself out of its unbalance and into an efficient, scientifically managed and organized institution.

The pattern of the growth cycle is common to many kinds of economic, political, social, and religious institutions (pages 39-74). More specifically, the pattern is similar in nations, industries, and firms. Since this is true, and since the characteristics of growth in nations and industries are also similar, it is possible to extend the knowledge of growth patterns and parameters to include firms as well. Thus the theory has a built-in test of reliability, in addition to its support by empirical evidence.

The theory demonstrates two critical points in the cycle. The first is the take-off, when the conditions of the first stage are changed and disequilibrium is introduced into the firm. The necessary prerequisites for the take-off are: the innovation, the entrepreneur, investment capital, risk and uncertainty, reward for uncertainty, the desire to change, social overhead capital, and a suitable growth environment (pages 84-88). The second critical point -- the development prerequisites for maturity -- is likely to cover a longer period of time than the take-off.
It includes the achievement of stability in net investment, employment, and sales, a full functional development in a rational organization structure, and effective administrative and operative management (pages 93-96). Thus, the first of these points introduces instability, while the second seeks to overcome that condition, creating a stable base from which a new growth cycle may be initiated.

The following are important growth factors:

1. **Objectives.** The objective of the leader in the first stage is survival of the firm and a satisfactory personal income. In the second stage the objective of the entrepreneur is personal gain like riches, power, or the creation of a successful institution. The goal is quite optimistic, with the entrepreneur unaware of many of the difficulties involved in attaining it. The firm in the third stage will have differentiated between the primary service objective, which serves as an intermediate system for the institution, and collateral and secondary objectives. All of these third stage goals are rational and attainable (pages 114-124).

2. **Policy.** Policy in the first stage is determined by precedent, with certain limited legitimate rights of the leadership to interpret precedent. It is centralized, restrictive, and unstable. Policy in the second stage is legitimized by the charisma (personal power) of the
entrepreneur, who initiates centralized, personal policy to support his business tactics. In the third stage policy becomes the product of group administrative processes. Unlike the earlier kind, this policy is built upon scientific principles of action, is formal and recorded, and tends to promote greater freedom for individual action (pages 127-138).

3. Leadership. The leadership of the first stage is that of the unimaginative small business leader. He holds his role through the traditional legitimacy of ownership of assets, and assigns subordinate roles by personal preference like the head of a family, rather than on a scientific basis. He exercises a face-to-face kind of leadership. The leader in the second stage is the entrepreneur. His role is legitimized by his charismatic authority, also requiring a face-to-face type of leadership. Unlike the conservative leader in the first stage, the entrepreneur is dynamic and optimistic. His is an artistic and intuitive talent. He gathers a markedly heterogeneous group about him.

The leadership in the third stage is that of the executive leader. His role is legitimized by the legal authority of the system. The executive leader may possess personal leadership ability, but he is distinctive for his ability to perform the management process as well. That
is he can plan, organize, and control future business operations. Roles of subordinates are assigned on a basis of ability to perform a specific set of functional duties, scientifically determined. Unlike the entrepreneur, the executive leader is scientific rather than artistic, strategic rather than tactical. His subordinate group is homogeneous in nature (pages 172-199).

4. **Morale.** Morale in the first stage reaches no particular extreme of good or bad, since the environment is structured by tradition and hence subject to little question. The prevailing attitude is one of fatalism. Morale in the second stage is high, with frequent interaction among the heterogeneous group, and stimulated by the conditions of dynamic change and an optimistic outlook of the future. Interpersonal relations tend to be quite informal. In the third stage of growth morale is also high, though for different reasons. Now there is a homogeneous group which has little interaction, held together through rational conformity with a systematic management philosophy. Interpersonal relations are now on a formal basis (pages 205-214).

5. **Business functions.** The first stage tends to be built upon the operative skill of the owner-manager in one function. The second stage is built upon the exploitation of a single function. This is usually sales, followed by
the development of production, and finally finance. The
third stage is characterized by strength in all functions
with a separation of their administrative and operative
phases (pages 113, 242-248, 294).

6. Organization structure. Organization structure in
the first stage of growth is free from any dominant tend-
encies to take a particular shape. Since roles are
assigned on a basis of traditional authority, particular
assignments depend upon such factors as friendship or
kinship ties with the leader. In the second stage the
structure takes on a flat shape, since spans are wide and
levels restricted in order to support the charismatic
power of the entrepreneur. Wide spans in this stage are
consistent with needs by subordinates for freedom of
action. As spans increase and new levels are created,
functions also devolve and evolve. Because centralized
control is no longer feasible under such conditions the
firm moves to a decentralized, rationally organized
structure. In the third stage the firm becomes longer
with a narrowing of spans and decentralization of authority.
A rational structure develops with clearly defined objec-
tives, policy, functions, and authority. Personnel are
hired to perform a particular set of duties for which they
are held accountable. Their loyalty is to the job and the
system rather than to a single hero image (pages 224-254).
7. **Staff.** The use of staff in the first stage is limited to housekeeping functions and, perhaps, a few technical aids. None other is needed since the idea of progress is not considered and methods are expected to continue in the same way into the future. In the second stage one may expect to find, in addition to technical and housekeeping staff, the type of general staff assistant commonly referred to as the "assistant-to." This person acts as an extension of the personality of his principal, aiding him in coordinating the efforts of those within his wide span of control. In the third stage one finds a full development of staff functions with technical and coordinative staffs, including committees, aimed at supporting the increasing mass of organization. Executive and operative spans are reduced to rational limits (pages 255-264).

8. **Invention and innovation.** The process of innovation is performed by one or more persons and includes the conceptualization of a new idea, developing it and adapting it to business use, and utilizing the idea in actual operations. Seldom does the entrepreneur of the second stage have the inventive ability to create a new invention. The entrepreneur does have a talent for recognizing the opportunities connected with a new idea, however. By the time the third stage is reached, invention and development
have become a controlled process performed by corporate research and development staffs (pages 301-327).

9. **Uncertainty and risk.** Uncertainty is an unmeasurable probability of gain or loss. Risk, on the other hand, is a measurable probability of gain or loss. The unimaginative small business leader seeks an absence of risk and uncertainty, and, since uncertainty is rewarded with excess profits, receives none of these consequent rewards. The entrepreneur, on the other hand, has sufficient drive for achievement and reward to induce him to step into conditions of uncertainty and exploit the situation. The executive leader is more rational in his approach, tending to calculate the risk involved in actions and to build this risk into the cost structure of the product. Staff units in the rational organization structure are devoted importantly to planning and control necessary to reduce uncertainty to a measurable risk.

During growth greater potential uncertainty develops as more resources are committed to future action. Without the trend to rational calculation of risk in the rational structure, the uncertainty that was the stimulation during early growth could lead to the failure of the larger organization (pages 328-332).

10. **Growth and size.** Growth is a process while size is a state. The growing firm benefits by both economies of
size and economies of growth, while the stable firm receives only the former. Merely increasing size through greater addition of factor inputs does not necessarily result in growth, for the internal changes associated with growth would not be present in the absence of a take-off. It will be recalled that growth as it is defined in this theory does not include external acquisition; nor does it include a simple increase in size solely because of an increase in the industry demand condition. Rather growth, as defined, requires a combination of factors which induce an internally generated increase of sales, assets, and employment at an increasing rate. An increase in size results in technological economies, managerial economies, economies of power, and financial economies. Growth, on the other hand, results in economies of factor prices, economies of resource use, and economies of natural change. Small firms have the greatest potential gains from growth. Parts of large firms may similarly benefit from growth, however.

The Empirical Evidence

The analytical growth theory has been compared with empirical evidence throughout this study in an effort to show the extent to which the theory is applicable to real situations. A detailed longitudinal study of five firms was conducted in depth and pertinent research from other
sources has also been utilized. Many of the resulting conclusions about growth would not have been possible without the theory since the theory provides a basis for explanation of deviations. In general, the evidence strongly supports the applicability of the theory to real life situations. In specific instances, there are deviations between the simplicity of the theory and the complexity of real life. Where these deviations have occurred they have been explained.

The following are empirical findings from the present study:

1. A study of growth in nations, unions, firms, industries, and other organizations reveals remarkable similarity in characteristics of growth and in pattern of growth. There appear to be certain well-defined factors which are responsible for the part of growth and for its successful completion. Also, the growth cycle of one organization, such as the firm, need not correspond with the pattern of growth in the industry of which it is a part (pages 71-73).

2. The United States as a whole provides an example of a growth cycle in a broad scale economic institution. The data suggest that the country began its take-off about 1840, and may presently be reaching full maturity. The midpoint of the cycle was approximately 1900. Similar
patterns are visible in the growth of industries and firms (pages 105-113, 139-167).

3. It appears that the successful achievement of a take-off into rapid growth is the exception rather than the usual case. This conclusion is suggested by the limited employment in most firms -- over 90 per cent have less than 20 employees -- and by their limited life expectancy. These small firms are usually run by owner-managers whose only measures of accomplishment is continued profitable operation (pages 114-119).

4. The general pattern in the growth cycle is for sales to increase at a more rapid rate than investment, and for investment to increase more rapidly than employment. Objectives and policy can cause important deviations from this pattern, however. For example, an entrepreneur may accelerate investment by reinvesting a portion of his immediate profit, which he would otherwise have taken from the business, thus realizing the greater future profit opportunities to be gained from such action. (pages 139-167).

5. Firms that are successful in achieving a take-off will follow a characteristic S-shaped growth curve. By knowing the rate of growth in the years at least to the middle of the growth stage it is possible to predict the
yearly sales in the remaining years of the cycle, assuming that the firm can successfully achieve maturity. This technique can be used as an important forecasting and planning tool by the firm (pages 135-167 and Appendix B).

6. Unlike the take-off in which the critical conditions jell within two or three years, the achievement of maturity takes place gradually during the latter half of the growth stage. There is evidence that the failure to develop adequate executive leadership and a rational organization structure before the third stage is reached may result in "stunting" the growth of the firm at a lower level than might otherwise have been achieved (pages 146-151, 156-162).

7. Research has shown that high group morale may be achieved when (a) there is frequent interaction between persons who may dislike each other personally yet who conform to group norms, or (b) there is infrequent interaction between persons of quite similar interests and personalities. The first occurs in periods of great change and disorder in the group, or when external threat causes a mobilization for a common purpose. The second occurs when persons have similar philosophies and are capable of conformance with a common system of thought and behavior. In other words, a stable, rational organizational structure demands a clear-cut philosophy of
management aids in holding the group together and maintaining good morale (pages 205-214).

8. Three cross-sectional and two longitudinal studies, including the longitudinal study in the present research, were analyzed in an effort to prove or disprove the corollary of the Law of Functional Growth. This Law states that as the volume of business in a firm grows, the various functions performed increase in scope and complexity; and, further, that the complexity of functional relationships tends to increase in geometric progression as the work volume increases arithmetically. Its corollary states that staff organizations tend to grow faster than the line organizations they serve. The following conclusions may be drawn from the studies:

a) A geometric rate of staff growth in comparison with line growth is clearly visible in the early years of growth, though this staff growth occurs because of staff differentiation during those years and is thus more definitional than actual.

b) It is evident that, aside from routine housekeeping functions, the specialized technical staffs are organized as separate staff units before coordinative staffs appear. In other words, the function of control remains longer in the line than the function of planning.
The firm requires specialized assistance in planning and organizing sooner than in control.

c) The apparent conflict between empirical results of studies on staff growth and the predicted results from a priori logic may be resolved by a restatement of the corollary to the Law of Functional Growth. That is, as the line grows linearly, the requirements for coordination increase at a geometric rate. This responsibility for coordination may be delegated to staff, including committees, or it may be performed by line management. The particular pattern followed in a single firm depends upon company policy (pages 255-292).

9. Where the leadership of the firm exerts a strong personal influence on the members of the organization, the tendency is for management to handle coordinative functions, aided perhaps by general staff assistants. In such cases spans of control are wide and levels are restricted. On the other hand, where the leadership is capable of planning, organizing, and controlling the members of the firm in a rational manner, then delegation can take place, permitting spans at recommended numbers and more levels in the organization (pages 234-242, 256-261).

10. As a total national economic system moves from the take-off to maturity the inventive process tends to change. Some of the more apparent trends: there is an adverse
effect upon the quantity and quality of invention; invention processes become more institutional, scientific, and technological; and inventive results are initiated under conditions of market control. In terms of the growth cycle of the individual firm, the evidence suggests that: the dynamic stage is historically more suited for innovation, the maturing firm will rely more upon internal staff sources for innovation, the firm will expend effort upon development of the existing product base in addition to its original research effort, and the development of maturity makes the firm more conservative in the introduction of major product innovations whose success in the market or affect upon the industry is uncertain.

It should be recognized that the fact that these conditions tend to develop does not mean that they must develop this way. By being conscious of these limiting factors the firm may plan to avoid their pitfalls (pages 304-327).

11. Research tends to confirm the conclusion that some persons (such as the entrepreneur) are emotionally more suitable to operate under conditions of uncertainty vis-a-vis risk. Persons with high need for achievement and low fear of failure will make business decisions under conditions of uncertainty. However, these characteristics do not correlate with conditions of informed risk. This
information tends to reinforce the theoretical model, for it says in effect that the entrepreneur plays a crucial personal role during periods of organizational instability and uncertainty, but that in a mature firm the rational organization structure and scientific performance of management functions is far more crucial to business success than the personalities of individual top executives.¹ (pages 331-334).

12. The difference between size and growth is apparent in investment and profits. There is considerable evidence that profits are highest when the rate of growth is greatest, yet also increase with size as well. The sales-asset ratio normally increases as the rate of growth increases. Regarding investment, the take-off is financed primarily from equity capital or trade credit while growth is financed heavily from reinvested earnings. Size also plays a part in financing from earnings when for small firms and for firms in the middle size range, additional borrowing is needed. The largest firms finance investment much more heavily from equity than do small firms (pages 347-360).

¹This would seem to confirm the statement by R. C. Davis that "the economic importance of the individual as an organizational element varies inversely with the size [and growth] of the organization, regardless of the echelon in which he serves." The Fundamentals of Top Management, p. 261.
Planning for Growth

The intention of this dual analytical and empirical study has been to show how growth does take place, not how it should take place. Yet the former leads naturally to the latter. For this reason it seems fitting to close with some few remarks about the broader policy implications of the growth theory described. Questions have arisen from time to time that deserve an answer: For example, cannot a firm grow without entering a growth cycle? Or, is it possible for a large firm to undertake the development of a new growth cycle, just as the small firm did? Or, how does the possibility of the growth cycle relate to national economic policy? These and other questions will be explored briefly in the remaining pages.

Growth in small firms. Obviously a firm may increase in size, benefiting from economies of size, simply through an increase in resource inputs. A producer of baby bottles who increases output to meet a baby boom has not entered a growth cycle if he simply continues to operate in the same fashion in the same market with the same products, but he may enter a growth cycle if he is able to develop the necessary conditions for a take-off.

The firms presented in this study have all managed, to a greater or lesser degree, to initiate a take-off into growth. By taking small firms with a single product base,
it was possible to follow the progress of growth by following the change in the sales, assets, and employment measures used. Where a company has more than one product base, or where cycles are not discernible, or where mergers and acquisitions have taken place, such total measures would not be suitable. Where several product bases exist one is faced with the problem of separating resources by product base. Measurement is facilitated where firms are divisionalized on a product-line basis. Where several overlapping growth cycles take place it is necessary to measure the beginning of a cycle by a transfer of resources -- an almost impossible task.

Thus it must be stated that the growth model may be used most fruitfully in initiating growth in small traditional companies for these firms have the greatest to gain from growth and size and are the easiest to plan for. Planning technical and financial support for growth in small firms may come from government, communities, industry sources, or from the firms themselves. With regard to initiating the take-off in the first place, sufficient profit opportunities must be available to call forth uncertainty-accepting entrepreneurs and to finance the push needed in net investment. The first may be done through a reduced tax burden on new business and on business or corporate profits. The second may be achieved
through making available funds for expansion. The small businessmen has a decided disadvantage over his larger competitors in raising capital, particularly long-term capital. At present there is almost no satisfactory long-term source of loanable funds for the small businessman other than the Small Business Administration, forcing him to rely upon short-term sources for long-term needs.

With regard to the move to maturity, the small firm may use the statistical technique in Appendix B for fitting the growth cycle as a means of planning for maturity. After the midpoint of the growth stage the firm must begin to (a) develop sound executive leadership, (b) plan a rational organization structure, (c) assure itself that it has strength in all of its business functions, (d) develop the necessary distinction between its administrative and operative levels of management, and (e) plan for further growth. Thus, by anticipating maturity three, five, or ten years in advance the firm may establish the necessary plans for its successful attainment.

Once it reaches maturity the firm has three major alternatives. First, it may expand its resources through merger and acquisition. In so doing the firm may integrate vertically or horizontally by merger or acquisition, gaining more reliable sources of supply or outlets and diversifying its product lines. Secondly, the firm may
revert to a traditional form. Risk will be fixed or reduced, uncertainty eliminated, and if demand for the product is sufficiently stable the firm may continue for years with emphasis upon welfare programs, lavish buildings, and other signs of affluence. Finally, the firm approaching maturity has the alternative of initiating a new take-off. Some firms will allow the old base to decline without any great effort at stabilization. Others, more preferably, will build a new base upon the maturity acquired in the old. New product lines may be added, new plants added in different locations, new markets may be tapped.²

Growth in large firms. The means of continued growth just described may also be classified as external and internal growth. Such classification would place merger and acquisition in the first category and internal exploitation of an innovation through the growth cycle in the second. Falling in both of these classes to some extent is internal growth resulting from autonomous external

²This view is shared by Edith Penrose: "Taking advantage of internal economies of growth, firms may go into new products, sometimes founding new industries, or they may build (or acquire) plants in new locations at home and in foreign countries. Often these operations are organized in new subsidiaries, new divisions, new branches, or some similar unit." The Theory of the Growth of the Firm, p. 101.
forces. Where the company role is passive expansion, then
the result is closer to external growth. Where the company
moves to exploit the situation, it may be internal.

Knowledge of the growth cycle is still quite useful in
planning growth in large firms as well, although the cycle
will take place in part of the firm rather than in the
firm as a whole. Under most circumstances it would be
sheer folly for a firm to lose the tremendous efficiencies
of the rational organization structure and scientific
executive leadership. What it can do, however, is keep
in mind the natural economies of growth and plan, organize,
and control growth to that end. Specifically, growth may
be organized in separate profit centers, utilizing innova-
tions from within or outside the organization.

Large firms should carefully appraise the results of
their research efforts with regard to growth potential.
Firms should avoid emphasis upon development efforts when
new product bases are needed. They should provide some
means for bringing into the firm the ideas of inventors
outside the company, e.g., by publishing needs or offer in
inventors' and trade journals; by reviewing patent issues,
or by supporting efforts of productive individual inventors.
They should not expect that a scientific or technical
background is a necessary prerequisite to inventive ability.
They should not be afraid to initiate new bases under conditions of uncertainty, provided there are sufficient rewards for their action.

The divisional growth cycle may be patterned similarly to the firm cycle. Leadership should be selected on a basis of proven entrepreneurial ability, and ability to operate well under conditions of uncertainty, while retaining a recognition of the over-all primary service objective of the firm. The entrepreneur who heads the division should be given liberty in picking his subordinate team. He should be at liberty to draw resources from the rest of the company, but should not be expected to have the same kind of organization structure as more mature product divisions. Based upon the previous discussion of entrepreneurial leadership, it may be expected that his spans may be wider, he may rely more heavily upon personal control, and he may prefer to operate in a more centralized, personal fashion.

Organization and executive leadership in the division should then be developed according to the needs of the division and not necessarily according to a company pattern. Such an arrangement is possible if the philosophy of management in the parent company recognizes that decentralization of general administrative management may be carried down as far as the division head level. Under these circumstances
the division head can set his own divisional objectives and policy with such action controlled by top administrative management. This control would be viewed in terms of the position on the growth cycle rather than according to some inflexible standard.

From these brief remarks it should be evident that the growth theory has relevance in both the small and the large firm, even though the discussion has centered primarily upon the small firm.

**Signs of stagnation.** Once the small firm or division of a larger organization reaches maturity it must use great care not to move from a vigorous, well managed organization back into the weaknesses of the traditional first stage. The theory thus may also be used for control of the philosophy of management in the company. Examples of signs of stagnation which may be used as danger signals are as follows:

a) **Failure to recognize the primary service objective.** Once the firm begins to believe that it knows what is best for the consumer it loses the critical binding force of the service objective and replaces it with the costly disorder of organizational anarchy on one hand or the similarly costly rigidity of centralization on the other. When such conditions develop the firm is no longer an effective cooperative system. It abounds with persons who
place their own interests first. This attitude stems from the general feeling that progress is unlikely so that the present should be exploited.

b) **Strict adherence to tradition.** When the firm begins to defend programs, policies, rules, or procedures with the argument that "that's the way things have always been done," the firm is headed for stagnation. The effect with such an attitude is to lose sight of the objectives and principles upon which the original policies were based. When this happens policy becomes an inhibiting factor to organization members instead of a source of greater freedom, as it should be.

c) **Failure to promote or retain managers on a basis of demonstrated competence.** When the firm begins to build its management force with a criterion of length in office, internal politics, favoritism, or some other traditional method it loses the vitality associated with sound executive leadership. Such self-perpetuated managers seldom look with favor upon the requirements for further progress and growth.

d) **The presence of indispensable personnel.** The presence in the firm of persons who presumably cannot be replaced suggests that the firm is not organized or managed properly. Such conditions do not occur where there is adequate planning, policy, delegation, and training.
e) Organizational preoccupation with one function.

When a single function like sales or production is developed at a cost of weakness in other functions, the firm is limiting its ability to compete in the marketplace. As conditions change it is necessary for the firm to rely upon strengths in all of its functions: perhaps finance at one time, or production at another. Strength in one function only can lead to stagnation. The organization's service objective must be given primacy, not the short-term needs of one function alone.

f) Continued concern with a single product base beyond its usefulness. Where external demand for the company product base increases due to autonomous factors, the company may continue with an increasing size of sales or assets for some years after maturity. Yet such a position runs the danger of making the firm and its management so comfortable that they overlook the importance of planning for the future, particularly in terms of the development of new product bases. Another effect in the elimination of product research or preoccupation with development efforts.

g) Failure to organize around the work to be performed.

A comparison of the traditional organization with the rational organization structure suggests certain signs of failure: Organization around personalities instead of work
is one. Another is performance by top managers of operative and not administrative work. Executives who spend their time putting out fires instead of planning for the future are destroying the foundations for future company growth.

h) Continued reliance on men, methods, and equipment because of habit, particularly when improvements are evident in the industry. Low costs today are no indication of high profits in the future. Reliance upon outdated resources, including management, is false economy.

i) Elimination of technical and coordinative staff support. The elimination of staff has been demonstrated as a false economy. There is a certain minimum of coordination necessary to support an organization of a particular size which cannot normally be handled by line management alone. To reduce indirect costs through a cut in staff is to introduce rigidities and organizational anarchy.

j) Initiating company welfare programs that are not tied to performance. Compensation of any kind, direct or indirect, should be related to an individual's contribution to the primary service objective, whether through increased output, reduced cost, eliminated waste, or conscientious service. Where no such relationship can be established, or where the welfare program is defended upon "intangible" benefits, its value should be seriously questioned.
k) **Fear of risk and uncertainty.** Traditional organizations have great fear of progress, for progress requires some uncertainty of the future. New product or product improvement programs which require that the product have no uncertainty connected with it stand little chance of success.

1) **Failure to engage in long-range planning.** A sure sign of stagnation is the failure to plan for the future. Progress measured by improvement over past performance is misleading. Success measured by immediate profits is also. The firm must plan today for growth, if it is to take place in the future.

From the previous discussion it should be evident that the growth theory has relevance in small and large firm growth and that it is useful in maintaining a strong and vigorous maturity from which further growth can take place.

**Recommended Further Research**

The growth theory presented here quite naturally is only a first step into the inquiry of the nature and process of growth. It is an attempt to provide the first closed system with internal consistency dealing with the subject of business growth, and is the only growth theory built upon the functional theory of scientific administrative
management. The theory is valid to the extent that it has the required logical consistency. This, it is hoped, has been demonstrated. The theory is applicable to real life to the extent that the parameters of the theory match the parameters of real life. This has also been demonstrated to the degree possible with present research on growth.

In future years it is hoped that further research attention will be devoted to the subject of growth. Specifically, the following research projects are proposed:

1. **A study of the characteristics of small businessmen.** In view of the number of persons engaged in the operation of small business it is surprising that almost complete ignorance exists regarding their background, attitudes, training and education. Even the Small Business Administration has done little research in this respect. A broad cross-sectional analysis by industry groups should be quite helpful.

2. **A study of the general staff assistant.** No rigorous research has been done to clarify the organizational and functional role of the general staff assistant, particularly the assistant-to. It would be most helpful to know the economies and diseconomies experienced in using staff assistants, to assess their effectiveness as coordinators for their principal, and to correlate the
presence or absence of assistants with span of control of the principal.

3. A continuing study of growth characteristics. Of the many company histories which have been published few have information applicable to growth studies. Furthermore, few firms maintain all of the records that would be desired, particularly in pre-take-off periods. It would be fruitful to follow the progress of a number of businesses over the years from their beginning for the purpose of comparing the characteristics of those which did not achieve a successful growth cycle with those that did. Further, the relative importance of the criteria for growth and for maturity could be measured.

4. The role of invention and innovation in business. The whole field of business innovation remains virgin to serious research. Some questions that remain unanswered: Can the staff man perform the same function as the isolated inventor? How can one distinguish between invention and development? What are the characteristics of staff research and development men in industry and what influence do these characteristics have upon the quality and type of innovation which they yield? How can business organizations establish channels of communication with isolated private inventors?
5. **Growth cycles by product divisions.** By establishing measures of growth for individual product divisions instead of for the company as a whole, it should be possible to analyze the growth cycles of such divisions. This analysis should point up any differences between divisional and total company growth and should confirm the fact that the same predictable pattern takes place in a division, just as it did in a firm.

6. **The effects of a management philosophy upon organizational and managerial effectiveness.** Gross measures could be used to compare firms with a clearly defined management philosophy with firms in which the philosophy is weak or absent. Such things as competitive industry position, product quality, long run profitability, growth, innovative record, expenditure on research and development, degree of decentralization, productivity, organization morale, and labor-management relations, might be considered for the two groups as well as the Ohio State Leadership Scale factors of consideration and initiating structure.

Further research might also yield measures of effectiveness when the management philosophy has been (a) used for indoctrination, and (b) used for selection of managers. It is felt that perhaps the use of the philosophy as a
basis of selection in the first place might make it easier to indoctrinate once the manager is on the job.

7. A cross-sectional analysis of firms by stages. Further confirmation of the statement that the growth cycle is a function of disequilibrium might be made by using the characteristics of each stage of growth to classify firms or divisions of firms, and then correlating the classifications with business growth. The fact that firms often contained several product bases in different cycles tends to dilute the data. A technique might be developed for separating the effects of the various cycles.

8. Entrepreneurship in big business. The obvious danger in becoming a large rational organization with an integrated homogeneous workgroup is that the conditions would militate against the presence of strong-willed entrepreneurs. Yet these persons appear to be valuable for face-to-face leadership roles under periods of stress and uncertainty. Research should be conducted to determine the extent to which these men are present in big business and the means by which their presence is rationalized within the mature organization structure.

It is hoped that these and other research projects will further the inquiry into the subject of growth. The validity and applicability of administrative management
theory as it is known today appears beyond question. What is needed now is a study of the means by which the small traditional firm attains the advantages of sound executive leadership in a rational organization structure.
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APPENDIXES
Company A

Company A was started in 1950 by two enterprising young brothers, Bill and Henry Case. Bill Case had developed an idea for an electronic measuring device and control unit which he felt sure would create a substantial dollar saving for steel manufacturers. After a search for funds to begin the business, while his brother worked to provide money to eat, Bill was finally successful in obtaining the backing of a Chicago investment firm which arranged for financial support in return for stock. The financial condition of the founders at the time is suggested by the fact that Bill was forced to walk to save car fare.

In May, 1950, the men moved to Cleveland, Ohio, and began the firm. The first business location was their own five-room apartment, where they both worked and lived. When they were unable to get a telephone installed, they put a radiotelephone in their car, wiring it to blow the car horn when a call came. When the neighbors complained of this arrangement, the men used a pay phone in a nearby drugstore.

By July the company was able to move into a small building and work was begun for a control mechanism for
the steel industry. The device utilized a process never before applied to industrial machine control. By the time that the control unit was perfected the Korean War had begun and the need for control of steel production was surpassed by the need for immediate output. Without becoming discouraged, the brothers simply adapted the same technology to a control device suitable for another industry. And, by guaranteeing to return the purchase price if its cost was not realized out of the first year's savings, sold the device to a manufacturer in the second industry. The control worked so well that similar devices were sold throughout the industry and the company was on its way to successful operations.

As the index of company sales in Figure 13 illustrates, the company began a period of extremely rapid growth in 1951. The only two dips in the ascent of sales occurred as a result of economic recessions. Employment jumped from ten employees in the early part of 1951 to 135 persons in the latter part of 1952. It is not surprising that organizational matters became important almost immediately. Efforts were made to organize departments. Operations progressed at a hectic pace.

In spite of the rapid changes and turmoil of operations, morale in the company remained quite high. The optimism and hard work of the central management figure,
Fig. 13. Company A Index of Dollar Sales, 1951-1959.
Bill Case, seemed to affect the people reporting to him. To cite one example, it was not unusual for Bill Case to call back to the plant from some part of the country to say that he had promised that a control device of a particular design would be shipped out the following day. Often the design would be completely new with no existing engineering specifications. Yet, upon this request, employees would work all night designing and building the device to meet the promised delivery date.

This kind of spirit, innovation, and hard work paid off. The company developed a reputation for a high degree of engineering skill and the ability to save their customers considerable money. Because of the adaptability of the basic control process the devices were installed for use in several different industries. One company reported an annual savings of $72,000 after the system was installed. Another in a different industry reported savings of over $100,000 during the first year.

The company reflects the personality of a few top executives, particularly Bill Case. The imprint of his ambition and vision is evident in each of his subordinates. On visiting the company one is immediately impressed by the fact that all management personnel in the company are of the highest calibre. This is ample reflection of Bill Case's belief that a successful firm is built upon three
things, men, idea, and money, the most important of these being men. There is also little question, however, that although he expects his executives to be highly skilled in their assigned areas of responsibility, he, himself, expects to make most of the major decisions.

The two Case brothers were born in Kentucky. Their father died when they were young, leaving the family with little income. Both worked to contribute to the family support yet excelled in their high school work as well. After a period in the Army in World War II, Bill was awarded an engineering degree at The Ohio State University in 1948, and continued in graduate work to receive a Master's degree at Massachusetts Institute of Technology. After leaving MIT he held three jobs in rapid succession, leaving the first two because his eagerness at suggesting improvements in operations antagonized his immediate supervisors.

In his third job he was assistant to the sales manager for an automatic control unit designed primarily for laboratory and scientific use. Bill Case recognized the industrial potential of the control process and sought to obtain some encouragement and recognition from his employer. When rejected, he decided to start his own company. He continues to be a hard-driving salesman for the company, with his principal interests in that function.
He expects the same high caliber of operation from his associates and subordinates that he demands of himself.

It is indicative of his management philosophy that the company has a "no-nonsense" air about it. While he lives comfortably, Bill Case has left most of the profits in the firm, preferring growth to personal affluence. What he wants, he says, is "a successful company with good people." Even the simple aggregate-block construction of the new plant and office buildings give indication that the company will remain lean and hard for a good many years to come.

Henry Case is less dynamic than his brother, more technically oriented. After service in the Army he completed work on a Master's degree in astronomy at the California Institute of Technology before returning to The Ohio State University for a Bachelor's degree in engineering. He then went to Harvard for another Master's degree, this time in computer sciences. He was working in the advanced research laboratories of Harvard University, in Arizona, when his brother was looking for money to start the firm.

Company organization charts show that Henry Case has moved from general manager to sales manager to executive vice-president as the company has grown. The present chart is illustrated in Figure 14. In making these changes he
Fig. 14. Organization of Company A.
has gradually evolved from a technical production background to a more general administrative executive.

Note should also be made of another executive not mentioned to this point. The present general manager, Mr. Richard Swenson, was employed as the firm's first accountant, in 1952. Since that time the scope of his responsibility has increased as his management talents have developed. For several years during the early period of growth he was responsible for the functions of production, personnel, finance, and purchasing. As these functions devolved with growth, he broadened in perspective to become the company's top general administrative head. Mr. Swenson is characterized by his associates as a somewhat conservative and deliberate type of person, who balances the optimism and haste of Bill Case. Swenson had gradually assumed the responsibility for making day-to-day executive decisions while the Case brothers deal with major operating decisions and company policy.

The company grew rapidly under the direction of these men, and by 1954 to 1956 began to suffer "growing pains." By 1956 employment was more than two and a half times its 1953 level with about 260 persons in the firm. Prior to 1954 operations had been highly centralized with a majority of important decisions made by Bill Case. Spans of control had grown wide, generally seven to ten at executive levels.
Such channels of authority as existed were relaxed, permitting easy access to the chief executive, even by bypassing middle-management. It is said, for example, that the president of the company almost directly supervised the duties of the janitors. When they wanted a change in hours or time off they made such requests directly from him.

Since the operation was highly centralized before 1956, extensive use was made of "assistant-to" positions for major executives. These general staff assistants are to be seen in organization charts for 1956, but not in 1952 when spans were small.

As the organization has become more formal some persons at lower levels have occasionally become antagonized. Persons who formerly had frequent contact with the chief executive have become disappointed when told to report to newly organized or newly enforced middle management positions. Some employees have been unable to make the transition and have quit the company.

A few incidents will illustrate the type of changes which took place during 1954 and 1956, and in the years which followed. First, in 1954, full-time personnel manager was employed. This man formalized employment and selection procedures. He also aided in dealing with organization problems, developing organization charts and manuals. Second, company policy manuals were developed
in 1956. These have not been kept up to date, however, since the responsibility for maintaining them has been shifted from one busy executive to another.

Third, other planning and control functions became more formal. The company began long range planning in 1955. Cost analysis was instituted in 1957 and cost control systems started in 1959. Employee and executive appraisal were started in 1958, and have gradually been expanded and improved. Finally, a complete reappraisal of the company objectives and management philosophy was undertaken in 1960.

The company continues to be efficient and aggressive, though organization and operations have become more formal and are much less a "one man show."

**Company B**

The beginning of the present Company B can be traced back to as early as 1907 when Michael Boury, the father of the present owners, left his job as a wild animal trainer with the circus and bought a small confectionery business in Wheeling, West Virginia. He eventually began buying candy and tobacco direct from the manufacturers and selling the excess to competitors at better prices than local wholesalers would offer. This wholesale effort was so successful that he sold the confectionery business in 1915 and, taking a partner, opened a wholesale candy and
tobacco business. The partners did not agree and Boury bought out his associate in 1923, continuing the business as a proprietorship.

The business was successful until the crash in 1929 when Michael Boury lost his accumulated wealth outside the business and found himself in debt. To free himself from this obligation he sold the business in 1931, keeping the fixtures. These fixtures, plus others which he purchased, evolved into a new business -- the sale of new and used store equipment. This date also marks the beginning of the product base from which the present business has grown. With the repeal of prohibition in 1933 the base was broadened to include the sale of restaurant glasses and bar items.

The early business faltered financially several times, including its sale at auction in bankruptcy proceedings in 1935. The firm was later resold to its original owner in 1936.

Michael Boury had three sons, George, Michael, Jr., and Ellis. George was the only one to participate seriously in the business during early years. He worked there as salesman during several periods between 1936 and 1940. After moving to Florida with his bride in 1940 he received word that both of his parents were in the hospital. He returned to Wheeling to find them both ill,
and the equipment business closed and insolvent. He decided to revitalize the firm, reorganizing it as the Ohio Valley Fixture Company.

Wartime scarcities of restaurant and store fixtures made inventory hard to obtain. George Boury would fly to the New York Bowery on a week end and purchase used equipment, then return to Wheeling to resell it locally. In 1942 he received his first big fixture installation. He designed and installed the fixtures for a cocktail lounge in a local hotel. This move was so successful that it indicated a source of business that has been sought to the present time.

New lines of bar and restaurant equipment were added in 1943. Rapid growth did not occur until 1944, however, when postwar demand combined with adequate supply and other factors to generate the beginnings of the take-off shown in Figure 15. At that time the business consisted of four persons: George Boury, who managed the operation, bought, sold, and "filled in everywhere"; Michael Boury, his father, who sold part-time; a truck driver; and Dorothy Simon, George's cousin, who "watched the store," handled maintenance services, kept books, and paid the bills. During the next two years more salesmen and truck drivers were added and the other two Boury brothers returned from the service to join the business as salesmen.
Fig. 15. Company B Sales, 1941-1959, and Assets, 1944-1959.
Another important growth factor, according to George Boury, was the choice by a nationally known manufacturer to use the company as a franchised dealer for its line of walk-in coolers, show cases, restaurant equipment, etc. It was an established line and added prestige and quality to the firm.

The aggressive leadership of George Boury, the return of the brothers from the service, the development of the product line, and the postwar demand for hard goods all laid the groundwork for a period of sustained growth. George Boury recognized the potential opportunities; he incorporated the firm in 1946, expanded physical facilities, added retail lines of appliances to the product base, and began exploiting sales opportunities through an extensive sales program.

The first of these moves, the incorporation and consequent organization of management, bears special mention since it set a pattern that has been followed to the present. The stock in the closed corporation was divided equally between the three brothers and their father, creating what might have been a problem of dual authority. The problem was avoided, however, by placing George Boury in the position of chief executive and his two brothers in subordinate positions as division heads. Thus, single accountability was retained, yet all three
brothers were able to participate in administrative matters.

Personnel, physical facilities, and product lines all were expanded rapidly in the three years after incorporation. In 1947 the company purchased an adjacent building to make room for its retail lines of domestic appliances. The same year a full-time service manager and more salesmen were added. A branch outlet in a town nearby was opened. Finally, a separate warehouse was rented. Functions had become differentiated and were becoming organized into the first definite organization structure. In 1949 a total of sixteen salesmen were added, working in two groups under the direction of a sales manager. By 1950 sales had nearly doubled their 1948 level.

The expansion of the firm began after World War II, continued to the middle fifties, and then reversed into a period of mild decline. It may be argued that since appliance sales in general also peaked during this time, that the growth of the organization was simply due to external causes. This cannot explain the phenomenal growth of the firm, however, since its sales increased at a faster rate than those of the industry. Thus, the particular innovative advantage that was responsible for the take-off and rapid growth of the firm appears to have been the ability of the firm to exploit its sales opportunities.
The organization of the firm shown in Figure 16 has remained substantially the same as it was in the early 1950's with only occasional attempts at minor reorganization. While the basic organization has been the same, the time of the central leader, George Boury, has continued to be spread over more product bases. In 1951 the Boury brothers became part owners of a downtown cocktail lounge in Wheeling. Two branch outlets were started in the next few years and then dropped. Finally, and perhaps most significant, the interest, money, and talent of the Boury brothers became directed to a new venture in the middle fifties, a chain of nationally advertised specialty Big Boy restaurants. In much the same fashion as it had with appliances, the management recognized an opportunity to exploit sales. The first of these restaurants was opened in 1955, and was soon followed by one in 1958 and another in 1960. All are extremely successful in sales volume and all lend themselves to a flat organization structure similar to the one used earlier for the appliance business.

The key figure in all of these enterprises is George Boury. Born of parents who had immigrated from their native Lebanon, he has the characteristic dark complexion and round features of the Lebanese. Two of his most important features are his strong desire for wealth and
Fig. 16. Organization of Company B.
affluence and his ability to deal with all kinds of people. His "friends" range from the janitor in his store to the millionaire owners of newspapers and banks. His employees feel a warm personal affection for him, often doing extra work that falls outside the realm of normal job requirements.

George Boury has often said that money is the answer to most of life's problems. Even in the early 1940's when the business was in weak financial condition one may discover that half of the fixed assets of the firm were in the form of a new Cadillac for its owner, George Boury. His home is among the most beautiful in the community and, built for comfortable entertaining, is frequented by many of the leading persons in the community. When he built the house, a three thousand dollar high fidelity record player installation was given preference over new furniture.

He has often said that he has little ability except to get good people into the business. He depreciates his own talents, yet has a keen intuitive knowledge of business. He also claims that he has had little schooling, although he completed one year of college.

In spite of his self-effacing attitude, George Boury is the central figure in Company B. His employees follow his desires through an affection for him personally.
He has, at present, partially prepared the business for its current stability of operations.

**Company C**

Company C is a plastics extrusion company started in 1950 by Borden Hizely. Mr. Hizely had been the sales manager of a large plastics fabrication company and later a manufacturer's representative for another plastics company. He had seen the kind of work which could be done by plastics extrusion, a process by which melted plastic is forced through a die, and he was convinced that the process had great profit potential.

Hizely started the present company as an individual proprietorship with "fifty dollars in the bank and fifty creditors." His first product was a plastic drinking straw. This item lost money originally but is still made by the firm at a small profit. A few months after the start of the firm, Hizely convinced three others to invest in the company and it was incorporated under the laws of Illinois with a capitalized value of $30,000. After another four months, when the success of the firm looked doubtful, the stockholders became disenchanted with the potential of Mr. Hizely and elected one of their own group, Mr. Phillip Davis, as general manager at no salary. Within weeks, Hizely sold his interest in the firm and left.
The Korean War came along, restricting the ability of the small firm to find raw materials. Besides this problem the management of the company was uncertain about what kind of products would be most suitable to fabricate. Several novelty items were produced as well as the parts for a plastic vanity set.

The ownership of the firm was changed during 1951 when Mr. Davis loaned money to another man, Neil Olson, to buy out the interest of a dissatisfied stockholder. Mr. Olson joined the company in the Spring of 1951 and by 1952 only he and Mr. Davis remained as owners.

In 1952 the company began to sell their plastic straws through their own agents rather than manufacturing them for redistribution by another party. The company also made the handles for a plastic fly swatter. The handles were sold in bulk to another company which combined them with molded swatter pads and marketed the product. When, in 1953, the customer stopped buying handles from the company, Company C reversed the situation and added its own line of fly swatters using molded pads purchased from another company. As illustrated in Figure 17, 1954 company sales were about eight times their 1950 level.

Company policy was changed somewhat by events in 1954. The firm secured the services of a highly skilled production
Fig. 17. Company C Sales and Assets, 1950-1960
man experienced in plastics extrusion work. This man, Clarence Jones, had worked for several other extrusion companies and had left each because of dissatisfaction with the way he was treated by his employers. Company C employed him at a competitively high salary and decided at the same time to enter more strongly into the field of custom extrusion work.

Since that time the company has acquired a reputation in the industry as one of the top four or five extrusion fabricators in the country, particularly in the extrusion of large shapes and the use of hard to handle kinds of plastic. It now has about 75 primary customers to whom it sells its output, including a light fixture company and a large appliance manufacturer.

There are so many variables involved in the extrusion process that only experienced specialists are able to take the work at a profit. One striking example of the present complexity of operations is suggested by the fact that in 1960 the company ran approximately one pound of scrap for every two pounds of acceptable product.

The organization and operation of the firm are quite unusual since they show no evidence of either a clearly defined take-off into rapid growth or development of a stable organization structure. As shown in their present organization chart, in Figure 18, the firm is presently
Fig. 18. Partial Organization of Company C.
operated and directed by both Mr. Davis and "his partner," as he calls him, Mr. Olson. Persons in charge of the various operating departments of the company are accountable to both men and receive orders from both. Both men also feel free to jump channels of authority in order to give orders to operators. One reason why this is necessary, according to Mr. Davis, is that Clarence Jones, the plant superintendent "is not a good manager and doesn't know how to handle his men."

The looseness of organization presents some problems. Communication is poor. On occasions the tool room does not know that production the following day will depend upon the die that it is working on. Objectives, policies, and procedures depend upon the needs of the moment, and are never clearly defined or put in writing. There is an absence of financial or other planning, except for an estimate of probable total sales the following year. Cost control is at a minimum.

In addition to handling the day to day operating problems of the company, Mr. Davis functions as the president, personnel manager, and chief financial officer of the company. Mr. Olson is company salesman, secretary-treasurer, and executive vice-president. The company has no accountant, but Mr. Davis's secretary keeps some books
in addition to her other duties. The purchasing function is "done by everyone."

The company was successful in defeating a union organization move in 1960. The president feels that part of the reason that organizing efforts were made is that he had "lost touch" with his workers. Another reason, he feels, was the lack of employment standards which had allowed uneducated rural persons to enter the company. Since the time of the labor difficulty Mr. Davis feels that he has remained in contact with the needs of the employees. By setting minimum job requirements and handling all selection himself he also feels that he has obtained a better class of workers.

The responsibility for making decisions has been abdicated to a noticeable degree. The reason for this condition may be understood somewhat by viewing the background and personality of the two major officers.

Phillip Davis graduated from a small eastern college in 1948. During college and after graduation he worked in the office of an insurance company. When his wife inherited a substantial sum of money he decided to go into business for himself. He states now that one important reason for going on his own was to prove that he could become a financial success himself, rather than relying upon the investment of his wife's money. He chose this
particular business to invest in because he felt that it had growth potential, in spite of the fact that he doubted the ability of the original owner-operator of the business.

Mr. Davis leads a well-ordered life. He is proud of the degree of success that the business has achieved and wants to see it continue to grow. In spite of the constant crises that are characteristic in the operations of the company, he has effectively separated his home life from the business. For example, he is able to take a two week vacation without worrying about business affairs. He tends to depreciate his own value in the business, even though he is responsible for most of the day to day decisions that have to be made. Because of his winning personality, he acts as a catalyst in a business that is otherwise without the direction of a hard-driving entrepreneur.

Mr. Davis's partner is unlike him in many respects. Neil Olson has been proud of his contributions to the company. Since he is the only salesman he may be given much credit for the constant increase in sales. He is unable to divorce himself from the activities of the firm, though he spends much time traveling from city to city to call on customers. He and Mr. Davis share the responsibility for top management decision-making in the company.
Company D

Company D was organized as a proprietorship in 1945 by William and Cora Spencer. The couple had formerly operated a small variety store, but entered the music business because of their common interest in the arts. Cora Spencer performed most of the managerial and financial duties for the small firm while William did teaching and routine selling. There was nothing unusual about the business that would differentiate it from any other small music shop, except, perhaps, that it specialized in the sale of sheet music rather than phonograph records. Its merchandise line also included band instruments, accordions, music accessories, and an electronic piano attachment. Lessons were given on several different instruments; the teaching duties other than those handled by Mr. Spencer were divided between a teacher who handled mostly band instrument lessons and a second who taught accordion.

In 1947 the firm moved to a more favorable location in the center of town. By being in the flow of traffic from a central bus transfer point it gained business from walk-in traffic. Although sales increased every year to 1950, volume was still at such a low level that few profits were made. The Spencers were slow to pay their bills and their credit standing with suppliers was poor.
In 1951 the Spencers were successful in persuading Mrs. Spencer's brother, Glen Gibson, to purchase the business. An arrangement was made for Mr. Gibson to pay for the business out of profits, since he had few personal assets at the time of purchase.

Mr. Gibson had just graduated from a college run by the religious faith of which he and his relatives were active members. He had taken a general liberal arts program with some courses in accounting and other business subjects. Although he was entering the music business he had no knowledge or training in music. He joined the firm in March, 1951 and took over the active management in August of that year.

The peculiar selling innovation that was to become the primary reason for the success of the firm came about through a combination of analysis and accident. First, in the process of selling instruments to the hundred or so students taking lessons at Company D, Mr. Gibson noticed that accordions carried a higher markup than other instruments. This markup was a result of the long life of the accordion and its customarily slow turnover. Band instruments, by comparison, wore out quickly, were damaged more easily, and sold more rapidly as each successive wave of public school band students bought new instruments. The ability of Company D to make band sales
was also limited by the fact that it did not have established relations with local high school band teachers, as did some of its competitors.

A second factor contributing to the sales innovation came when Mr. Gibson visited a small town near the city where the store was located. His purpose in making the visit was to try to sell an accordion to the parents of one of the store's students. At that time the father of the student asked Mr. Gibson why he did not send a teacher to the small town on one day a week instead of requiring that several children be driven to the store for lessons. Upon considering this question Mr. Gibson decided to try to enroll enough other students in the community to warrant sending a teacher to the town.

In registering new students Mr. Gibson followed a promotional method that has been common to the music industry known as a "ten week trial plan." In this plan the student paid a flat fee, in this case $15, for ten weekly lessons on an accordion which was furnished free. The trial instrument was called a "twelve-bass accordion" because it contained twelve bass music buttons as compared with the full 120 bass buttons of the regular instrument. By the end of the first ten weeks of lessons, the student had generally exhausted the capacity of the
trial instrument and was ready to move to a full sized instrument, to be purchased from the music studio.

The advantage of the plan to the student was that he could learn to play the accordion before making an outlay for the instrument. The plan was also competitive with band instrument plans in which the student got band lessons in the public school free of charge, but paid a rental fee on the instrument.

The third factor in the sales innovation occurred when Mr. Gibson discovered a means of obtaining many trial students inexpensively and efficiently. The normal procedure for gaining new students -- one commonly used by large and aggressive music studios -- was to employ a crew of women who would canvass neighborhoods to find persons interested in music lessons, making appointments for salesmen to call in the evening. This procedure worked fairly well but was costly. Mr. Gibson discovered that instead of canvassing, he could supply himself with a rich source of prospects just by putting on a free accordion show in small town grade schools and then asking the principal for the names and addresses of each of the pupils. The location of homes of children living in the country was obtained by asking school bus drivers to point out the families on their routes on a plat map.
As seen in Figure 19, assets and sales grew rapidly during the first few years of Mr. Gibson's management. After an initial promotion in the school and local newspaper the firm would send salesmen into one small town after another, establishing "branch studios" in each. One to two hundred students would be enrolled in the first trial program, taking lessons in small groups at a room rented for the teacher who came one or two days a week. The firm which had begun with sales of $27,000 in 1946 found itself with sales of over $115,000 two years after Mr. Gibson's promotional effort began.

The prevailing philosophy was to make as many sales as possible, even if the policy meant moving in gradually more distant towns to skim the cream of the initial promotions rather than developing an educational program in existing branches. There was a notable absence of pricing policy with prices being cut to make immediate sales. Advanced students taught newer ones. Salesmen were hired indiscriminately, often with disappointing results.

As new personnel were added to the firm they reported to Mr. Gibson. His span of control gradually became larger until by 1956 he had twenty-six people reporting to him. At that time, according to Gibson, "things just got out of hand." By the time the peak was reached, however, its
Fig. 19. Company D Sales, 1946-1960, and Assets, 1951-1960.
owner-manager who had started in a small shop with few personal assets was the owner of a rather large organization with many signs of success.

The firm that had started with 75 accordion students had over 2000 by 1956. It had branches in over a hundred small cities in central Ohio. It had moved into a building purchased by Mr. Gibson and had its own weekly television program. The owner had purchased a $50,000 home, had three automobiles, and traveled the territory in his own private airplane.

By 1956 Mr. Gibson found himself plagued with organization and management problems. Although sales reached a peak in 1956, costs were so far out of line that profits were less than in earlier years. Occasional attempts at bringing in middle-managers met with disappointing results, for these men would quit when they found that they lacked any authority. The absence of written policy caused confusion and misdirection by various persons in the organization. Students were quitting, often because of the poor quality of music teachers.

Rather than continue to cope with these problems, Mr. Gibson sought another kind of product base that would allow him to operate and make money as he had in the early years of the music business. He attempted to sell the music firm to various persons brought in to manage
the firm while he turned his thoughts to newer businesses. A short lived attempt was made at the manufacture and sale of church furniture. A few investments were made in oil drilling operations. Finally, Mr. Gibson purchased the patent for a new power lawnmower design and set up a new company to assemble and distribute the mowers.

The music business was allowed to deteriorate after 1956 while Mr. Gibson turned his attention to the new mower company. Within two years the sales dropped 75 per cent from the 1956 high. Recovery from this collapse did not take place until Mr. Gibson was forced to delegate authority and to reduce his span of control. The reason for these moves was accidental. Faced with the ultimate collapse of the business, Mr. Gibson finally decided to sell portions of his large sales territory to young salesmen. He allowed them to pay for their share out of profits. Thus, instead of twenty-four persons whom he supervised directly, he now has only thirteen, many of whom operate with little interference from Mr. Gibson. The present chart is shown in Figure 20.

Mr. Gibson would like to leave the music business altogether if some other enterprise could be found that was as profitable.
Fig. 20. Organization of Company D.
Company E

Company E was started in 1946 when Mr. Barth's wife invented a new kind of shoulder pad for women's dresses. Prior to her invention, women's dresses ordinarily had the pad sewn into each shoulder of the dress. When the garment was laundered, the pads had to be cut from their position and then resewn. To eliminate this difficulty, Mrs. Barth invented a pad that was held onto the dress by snaps and could be shaped to fit the curve of the shoulder simply by holding it in the desired position and pressing it against the body.

Mr. Barth, who was a merchandise manager for a large department store, recognized the salability of the item and joined his wife in establishing a firm to produce the product. They hired a seamstress, named, Mrs. Clara Jones to make the items in her basement and arranged with a department store in Cleveland, Ohio to advertise the pads as a notions item. The demand was remarkable and 20,000 of the pads were sold in a few weeks following the first advertisement.

It soon became obvious that the new company was going to need more capital if it was to grow. To fill this need, Mr. Barth was successful in bringing an acquaintance, Mr. Harry Simmons, into the firm with an agreement to split the ownership equally. Thus, at the time that the firm
was incorporated in 1947 its management included Mr. Barth, a skilled department store merchandising executive; Mrs. Barth, a woman of great intuitive ability with invention and design; and Mr. Simmons, who had previous management ability in the garment and notions field.

The product base that has grown from this beginning has two principal characteristics. In the first place, the items manufactured and sold by the firm are nearly all sewn notions like slippers, pillows, bathrobes, or seat covers. Secondly, nearly all of the items are made with fabricated foam rubber. This foam rubber was released by the government for consumer items in 1948 and thereafter became an important part of the line. The first use was in a variety of house slippers introduced in 1948. Like all of the other products in the company, they were born in the inventive mind of Mrs. Barth.

The firm has moved or added building space as it has grown. The rapid rate of growth may be seen in Figure 21. In 1949 the firm added to its line a bag for washing lingerie and packaged shredded foam rubber for use in stuffing pillows. Two years later it added ironing board covers; in three more years, auto seat covers and foam chair pillows; and soon after, travel pillows, bathwraps, and more footwear.
Fig. 21. Sales and Assets of Company E, 1947-1960
The firm has been somewhat unusual in its use of financial organization as a competitive strength. It formed a separate corporation in 1952 called Foam Distributors, Inc., in order to secure stronger sources of supply and to enter the distribution market for bulk foam. It now purchases foam rubber from a manufacturer as its distributor, selling part to product manufacturers in its assigned territory and selling part to its sister corporation. Foam Distributors will be merged with the main firm in 1961. The assets and sales of the Foam Distributors company are also shown in Figure 21, since the firm might be considered different enough to be classified as a second though minor product base.

Two other corporations have also been formed. One was organized under another name primarily to sell to department store buyers in hosiery departments instead of the notions departments where the company had always been strong. The small firm had a separate sales organization but the assets and production facilities remained in the parent company. The secondary firm has since merged with the parent organization. The other corporation was an equipment leasing company which will also be merged with the parent firm. The assets and sales of both of these firms have been included in the figures for the Barth
company since they need not be considered as separate organizational entities.

The present organization structure bears special mention because of its unusual nature. One is surprised to find that although Mr. Barth has been the guiding force in the company since its inception, he is not the president. The president of the firm is Mr. Simmons who heads the sales function in a New York office. The other functions, most importantly production and finance, are located in the main company headquarters in Cleveland, Ohio.

This unusual situation exists because it is believed that more weight can be added to the job of the head sales representative if he can be introduced as the president instead of the vice-president of sales. To this extent the unusual organization is an advantage. Otherwise, however, there are potential dangers. In the first place, the company operates under dual authority. Apparently the reason that this has never been a problem in the past is the geographical separation between the two men and their subordinate organizational units. Another potential source of confusion is the obvious increase in communication needs when the company is split in half. To meet this need at present both Mr. Barth and Mr. Simmons have capable subordinates who act as coordinators between the
two divisions. Mr. Barth's coordinator is Mr. Stone, the corporation treasurer. Mr. Simmons' coordinator is Mr. Gene Stephens, the assistant sales manager.

While the organization is still largely a reflection of Mr. Barth's personality, the structure shown in Figure 22 is beginning to mature. His son, George, is now in a general staff capacity reporting to his father. Preparations are being made for succession to top line positions by George and others. A budget program was installed in 1960, resulting in an all time high in profits the year of its institution. The year before had been one of the lowest profit years in recent corporation history. Finally, reports and procedures are being put in writing. It is said that not one piece of paper, including letters, ever passed across the desk of Mr. Barth until the last two or three years.

The firm has a flat organization structure with few staff personnel. The absence of staff is explained by the fact that top management would rather hire people who can engage directly in "earning their pay" instead of employing staff people whose return to the organization is less visible. It is to the credit of the firm that it has done a good job of planning without staff personnel in such areas as methods planning, cost control, and production scheduling. The firm has accomplished this
Fig. 22. Organization of Company E.
through its management personnel who are devoted to Mr. Barth and willing to put forth considerable time and effort in order to see the firm grow.

One must also understand the nature and background of Mr. Barth and his associates in order to get a clear picture of the firm. Mr. Barth had been the manager of a leased department in a department store, had run his own business for a while, and finally became merchandise manager for the firm which he left to organize the Barth company. He had a high school education with no training in business. Yet he has built his company to nearly five million dollars in sales in thirteen years.

He has been described as a "walker," because he can never be found at his desk. He is always circulating through the company familiarizing himself with conditions. He makes all important decisions in the company either alone or after conferring with his "partner" in New York. He dislikes becoming involved in details or busy work.

Mr. Simmons, the president, is quite a different type of person. He came to the company after working in an administrative position for a time and then operating his own company. This management background may be the reason that he is more concerned than his partner with detailed planning. It is said that Mr. Simmons likes to
know all of the facts before making a decision. He is more
deliberate in his actions than Mr. Barth.

The Vice-President of Production in Company E is Mrs.
Clara Jones. She worked originally as the seamstress who
fabricated the first products of the company and has
gradually gained greater responsibility and authority.
It is said that she would be hard to replace since no
one in the company knows her job nearly as well as she
does.

The fourth important member of top management is
Mr. Ed Stone. He came into the company in 1950 as an
accountant and has worked since that time in various
areas of corporate responsibility. He held the title of
comptroller until last year when it was changed to
corporate treasurer. At present he is either performing
or responsible for the following functions: accounting,
purchasing, legal aid, budgeting, administration of Foam
Distributors, insurance programs, and institutional sales.
Some plans are being made to eliminate some of his least
similar functions.

Company E has successfully stabilized itself to the
present. Future growth to maturity will depend upon its
ability to continue development of a rational organization
structure, administrative management, and a product base
that meets consumer needs.
Appendix B — Alternate Methods for Determining Theoretical Growth Curves

Background to the Methods

Observation of the growth pattern of sales, assets, and employment in firms suggests the pattern of a double exponential growth curve in which the rate of growth in these indices first increases at an increasing rate after the take-off into growth and then increases at a decreasing rate after the midpoint of the growth cycle. The cycle finally ends at the asymptote, the point at which final maturity is reached. The idea for such growth is not new, having been observed in population, industry, and national growth.1

The desirability of fitting a theoretical cycle curve to a single firm has been mentioned occasionally in the literature of business and economics but seldom attempted. The chief difficulty is the fact that total indices such as sales or employment may actually reflect several internal cycles or be distorted by merger activity. Unless the firm has a single product base and has not merged it is

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necessary to separate pertinent figures from aggregates, perhaps by using divisional sales.

One serious attempt at fitting growth curves to individual firms has been made by Mason Haire. His efforts are somewhat limited by the fact that he predicts a single exponential which would, if carried to its finality, result in an infinite rate of growth. Growth would be described by the equation \( \frac{dN}{dt} = N \log_e R \), where \( R \) is the rate of growth established in the first three years of growth and \( N \) is the number of employees, or, presumably, assets or sales. Such a phenomena is, of course, out of the question, since the rate must decrease at some point. Haire then tempers this growth rate by adding an external limit to growth, \( K \), thus modifying the equation to

\[
\frac{dN}{dt} = \left( \frac{K - N}{K} \right) N \log_e R.
\]

The analysis of the firms in the present study suggests that the growth is restricted by important internal limitation as well. Growth is limited by internal factors such as ability to establish scientific management systems and a rational organization structure. The theory in the present study indicates that the firm with a single product base which is successful in initiating growth as defined

\(^2\)Modern Organization Theory, 1959, p. 277.

\(^3\)Ibid., p. 281.
would follow a double exponential curve, increasing its
growth rate to the midpoint and decreasing its rate after
that point. In other words, the marginal increases in
growth -- yearly increase over the previous year's sales,
assets, or employment -- will peak at the midpoint of the
cycle.

In fitting the theoretical curve to the actual indices
of growth several alternative methods were available. The
most common of these methods are the Gompertz Curve and
the logistic curve.\(^4\) A third, less common method, is the
cumulativ normal distribution curve.\(^5\) The first two
methods were less suitable than the third for several
reasons. First, it is desired to prove or disprove the
theoretical model, i.e., how well the actual data conforms
to the theory. To use the Gompertz curve or the logistic
curve would be to do the reverse, that is, to make the
theoretical curve adjust to the data. The cumulative normal
curve does not have this limitation. Secondly, the Gompertz
curve normally has only one point of inflection. The need

\(^4\)See Frederick C. Mills, *Statistical Methods Applied to
Economics and Business* (New York: Henry Holt, 1938),
pp. 671-80. The Gompertz Curve is expressed in the formula
\(y = ab^c^x\); the logistic curve in the formula \(\frac{1}{y} = a + bc^x\).

\(^5\)A. M. Mood, *Introduction to the Theory of Statistics*
and F. J. Massey, *Introduction to Statistical Analysis* (New
for two inflection points is satisfied by the cumulative normal curve. Finally, the Gompertz and logistic curves have no necessary symmetry, thus would be limited when used for general prediction or forecasting of growth. The other curve contains this symmetry, besides eliminating some of the estimating of parameters necessary in Gompertz and logistic curves and retaining the expected maximum marginal sales at the mean year.

The cumulative normal distribution curve avoids the limitations of the other methods and permits a test of the reliability of the growth model. It shows how well the empirical evidence conforms to the theoretical model. The formula for this curve is:

$$N(x) = \frac{1}{s \sqrt{2\pi}} \int_{-\infty}^{\infty} e^{-\left(\frac{x-\bar{x}}{s/\sqrt{2}}\right)^2} \, dt$$

In this formula, $N(x)$ equals the percentage of each year's sales of the asymptote which, taken times the dollar figure of the asymptote, yields the theoretical yearly sales. The mean, $\bar{x}$, equals the asymptotic year minus the year of take-off divided by two. The standard deviation, $s$, equals the asymptotic year minus the mean divided by two. The high degree of correlation between actual data and the
theoretical curves attests to the value of this method in fitting such curves.

There are two alternate approaches to using this method. Either may be used, or both. Both were used in the present study for they serve as a check on each other.

The First Method for Fitting Theoretical Normal Growth Curves

The first method for fitting the theoretical growth curve is as follows:

1. Plot past data on sales, assets, or employment on regular graph paper. The X axis represents years of growth and the Y axis the particular index used.

2. Examine the plot to estimate the asymptote value. If the peak value is not clear then several alternatives are available. First, it may be helpful to plot the data on a ratio scale (semi-logarithmic scale) in order to reduce the slope at the later years of growth. Second, if the company is within the stage of rapid growth and no asymptote is clear, then it is sometimes possible to determine the point at which marginal increases seem to peak. The theoretical peak may then be determined by doubling the growth for the first half of the cycle and assuming the completion of the cycle to take as many years as the first half required. Third, where the first two alternatives are still unsatisfactory, a series of peak values may be chosen
and theoretical curves plotted for each peak value. The correct value may then be determined by computing the correlation coefficients for each of the resulting curves and choosing the peak value with the highest correlation coefficient.

3. Assuming that the sales curve is desired, divide each year's sales by the peak value determined in step two. All values become greater than zero but less than one.

4. Plot the values determined in step three on normal probability paper. Any series of points plotting as a straight line on normal probability paper will plot as an S-shaped cumulative frequency distribution curve on standard graph paper.

5. Determine the linear regression line through the points plotted on the probability scale. This may be done by eye, or by computing the line of best fit utilizing the method of least squares. It should be noted that if the least squares method is used that $Y$ is a ruler value and not the percentage value shown on the probability scale.

6. Multiply the regression line intercepts on the probability scale by the peak value determined in step two.

7. Plot the resulting theoretical values from step six on regular graph paper. These values represent the theoretical growth curve.
8. Determine the correlation coefficient of the actual and theoretical curves to get closeness of fit. If several curves have been drawn the one with the highest coefficient represents the most nearly representative theoretical curve. The formula for determining the coefficient of correlation is

\[
 r = 1 - \frac{\sum_{i=1}^{N} (x_{an} - x_{cn})^2}{\sum_{i=1}^{N} (x_{an} - \bar{x})^2}
\]

where \(x_{an}\) equals the actual value (sales, assets, employment) for any year, \(x_{cn}\) equals the computed value for any year, \(n\) equals any one particular year, and \(N\) equals the total number of years within the period. The average actual value of sales, \(\bar{x}\), is equal to

\[
 \bar{x} = \frac{\sum_{i=1}^{N} x_{an}}{N}
\]
The Second Method for Fitting Theoretical Normal Growth Curves

The second method for fitting the growth curve is similar to the first except that it eliminates the plot on probability paper and, in most cases, the need for fitting a least-squares trend line. It is computed as follows:

1. Determine value and year of asymptote for the index used (see steps one and two of method one).
2. Determine year of take-off.
3. Determine mean, \( \bar{x} \). This is the asymptotic year minus the year of take-off, divided by two. Note that if the asymptotic year is unknown, the mean may be determined by reading the value from the linear trend plotted on probability paper.
4. Determine one standard deviation, \( s \). This is the asymptote year minus \( \bar{x} \) divided by two.
5. List each year of growth, \( x \).
6. Subtract mean from each year, \( x - \bar{x} \).
7. Divide the result of step six by \( s \) for each year, \( \frac{x - \bar{x}}{s} \).
8. Read the value for each year in step six from a cumulative normal distribution table.\(^6\) This will give each year's growth in percentage figures.

\(^6\)See, for example, Mood, p. 423.
9. Multiply each year's percentage of growth from step eight times the asymptote value.

10. Determine correlation with actual growth curve. (See method one, step eight).
Appendix C -- Patterned Interview Guide

The following is the Patterned Interview Guide used as a basis for discussion with top management in each of the companies in the present sample. Questions were changed or adapted according to the needs of each situation. In some cases discussion on one question yielded answers to subsequent questions. In others it was necessary to pursue a basic question with further ones in order to get a satisfactory answer.

An attempt was made to get the opinions of the top manager in each of the firms studied for each stage of their growth. Since present administrators had been closely acquainted with their predecessors it was felt that their recall of statements by the earlier managers or of their own feelings at earlier stages was fairly accurate. The present president of companies B, C, D, and E was interviewed and the administrative assistant of company A. In the latter case, the assistant had served with the president for almost the entire company life; he was asked to answer the questions as the president, not he, would answer them.

An example of a typical approach to the interview is as follows: "Mr. President, an analysis of the history of your company and of the growth measures of sales, assets, and employment indicates that before 1951 the firm evidenced little growth. We shall call that period Stage One. After 1951 the firm began a period of sustained growth for some years, reaching a peak about 1960. We shall call that period Stage Two. Since 1960 the firm has operated with strength and efficiency although there has been no dramatic increase in the measures mentioned earlier. Let us call the remaining period Stage Three. Now, Mr. President, in some of the following questions I would like to get your attitudes or statement of business condition for each of the three stages just mentioned. I have written the dates on this paper for your guidance. Other questions, which will be indicated, require only one statement about conditions now or at some earlier point in time."

Questions in the interview have been keyed to major hypotheses in the growth theory. Subject areas and question designation are: objectives (O), leadership (L), organization (R), policy (P), morale (M), planning (N), and investment (I).
1. What were your personal objectives at each of these periods? Did you distinguish between what you wanted and what the business should accomplish?

2. What did you want the business to accomplish? In other words, during these periods what was the purpose or goal of the business?

3. What would you like to accomplish for yourself in future years?

4. What objective do you think the business should aim for in future years?

5. Describe the obligation which you feel or have felt that the business has to others (a) inside the business (employees, managers), and (b) outside the business (customers, stockholders, suppliers, competitors).

6. Were there any competitors in this line of business when the firm was started? Why did you succeed when some of them did not?

7. Do you use the same methods of leadership and management now that you did at these earlier periods? Let us discuss some examples of how they differ.

8. Did you feel that you were taking a gamble when you entered the business? Why did you do it?

9. Would you take the same gamble if you were in the same position again, but know what you know now?

10. Do you think that the average man on the street would take such a gamble? Why or why not? What kind of a person is willing to do what you did -- describe such a person.

11. Would you have gone into business without the possibility of great reward? Why or why not?

12. Have you generally felt superior to, equal to, or subordinate to the people working for you? Explain.

13. As the company has grown, when did the organization of work become an important problem? What are some examples of typical problems?
R  14. Describe the type of person which you feel or have felt makes a good employee. How have your opinions on this matter changed between these periods?

R  15. Would you describe the conditions of organization at these periods as stable or unstable? What are some examples?

R  16. Do you do more or less technical work like sales operations or product planning than you did earlier?

R  17. How have the kind of people reporting to you changed? Consider both the work that they do and their personalities. How have the orders which you give them changed?

R  18. During these stages how have you arranged to get information to lower levels in the organization? How have you arranged to find out what they are doing and thinking?

R  19. When have major management reorganizations taken place? Describe them. What made them necessary?

R  20. When did you set up seconds in command? Describe the process.

R  21. Have you ever used administrative assistants or had a "right-hand man?"

R  22. Does your assistant have the right to act in your name?

R  23. Would you say that you tell people (a) what to do and how to do it, or (b) what to do and leave them to determine the best way to do it?

P  24. To what extent has policy-making been done by other than the top executive? How would you describe policy in your company?

P  25. Are policies in writing? How are they changed?

M  26. Do you think that people like to work for you personally? Do they like to work for the company? Explain.

M  27. As a group, are your employees more or less happy than they used to be; in other words, is morale better or worse than in earlier stages? Why?
M 28. How rapid was employee turnover in each of the stages? What do you think caused the difference in rates?

M 29. People generally resist any sudden changes in their environment. If morale was high in the second stage or rapid change, how do you account for this attitude?

M 30. How has the homogeneity of the employee group changed between stages, if it has changed? In other words, do employees now have more similar interests and attitudes in this stage than they did in the previous stage?

M 31. Do people tend to get along well with each other? Have they always? What are some examples?

M 32. Do you think about the future more or less than you did in the last stage? Explain.

N 33. Why did the business expand and grow? Will you continue to use the same methods to achieve growth in the future? Why?

N 34. In what order have the major business functions developed? Do you feel that they are all strong at this point?

N 35. Has anyone outside the business ever given you advice on how to run the business? Has it been useful? Explain.

I 36. Where did the money come from to start this business? Have you reinvested earnings? To what extent?

I 37. Are profits as a percentage of sales higher or lower now than they were in earlier stages? Why?
I, Alan C. Filley, was born in Kansas City, Missouri, on January 24, 1932. I attended public schools in Kansas City, South Bend, Indiana, and Decatur, Illinois. I graduated from Decatur High School in June, 1949.

I attended Millikin University from 1949 to 1953, majoring in business administration and minoring in political science, and graduated with a Bachelor of Science degree in 1953. In addition, from 1951 through 1953 I worked as salesman and sales manager for a local music firm, traveling the central Illinois territory.

From 1953 to 1955 I served with the United States Army as a Personnel Administrative Specialist. Upon my discharge I attended the Indiana University, majoring in business management, and receiving my Master of Business Administration degree in 1956.

I served on the faculty of the University of North Dakota from 1956 to 1958 as instructor and assistant professor of management. I served at the University of Oklahoma in the summer of 1958 as visiting assistant professor, and then moved to Columbus, Ohio, where I entered The Ohio State University.
During my work toward a terminal degree of Doctor of Philosophy at The Ohio State University I served as assistant instructor, and lecturer. In addition, I served during the summer of 1959 as research assistant in the Bureau of Labor Education and Research, and the summer of 1960 as research specialist for the state of Ohio.

I am a coauthor with Ralph C. Davis of a book entitled *Business Management* and have published several articles. I am married to Florence Simon Filley and have two children.

I am presently Assistant Professor of Commerce at the University of Wisconsin.