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Thesis

A STUDY OF THE AFFECTS OF GROWTH UPON THE ORGANIZATIONAL
RELATIONSHIPS OF A GENERAL CONSTRUCTION COMPANY

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by

Peter C. Darin, Jr.

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Signature redacted

Signature of Author

School of Industrial Management

Signature redacted

Certified by

Professor Houlder Hudgins - Faculty Advisor of the Thesis

Letter of Transmittal

Professor Philip Franklin
Secretary of the Faculty
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Professor Franklin:

In accordance with the requirements for graduation,
I herewith submit a thesis entitled "A Study of the Affects of
Growth Upon the Organizational Relationships of a General
Construction Company".

I would like to take this opportunity to express my
gratitude to my thesis advisors, Professors Houlder Hudgins
and Chadwick Haberstroh, for their guidance and patience while
assisting me.

Sincerely yours,

Peter C. Darin, Jr.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION AND SUMMARY	1
History and Background	1
Research Methods	3
Major Conclusions	4
II. CONSTRUCTION INDUSTRY BACKGROUND	6
The Industry	7
General Contractors	11
Construction Procedure	12
General Construction's Future	19
III. ORGANIZATION OF A GENERAL CONTRACTOR	24
The Organization at Inception	24
The Medium Sized Organization	31
Conclusion	38
IV. THE COMPANIES INTERVIEWED AND THEIR PROBLEM	40
Facts of the Companies Interviewed	40
The General Contractor's Ten-Year Objective	42
The Problems of Growth	44
V. TYPES OF ORGANIZATIONAL STRUCTURE	46
Management by Product Division	46
Management by Function	48
Management by Geographical Divisions	50
VI. ONE-MAN VS. DELEGATED DECISION MAKING	52
One-Man and Delegated Decision Making	52
Advantages of One-Man Decision Making	54
Disadvantages of One-Man Decision Making	55
Advantages of Delegated Decision Making	57
Disadvantages of Delegated Decision Making	58
Controls or Standards	59
Executive Vice-President	62
Ten Years Hence	63
VII. CENTRALIZED VS. DECENTRALIZED CONTROL	65
Centralized Control	66
Decentralized Control	67
Controls or Standards	69
The Future	71

CHAPTER	PAGE
VIII. RECRUITING TRAINING AND RETENTION OF MANAGERS	73
Recruiting	73
Training	74
Retention of Managers	76
IX. CONCLUSIONS	79
Conclusions	79
Future Thesis Possibilities	81
BIBLIOGRAPHY	83

LIST OF FIGURES

FIGURE		PAGE
1.	Relationship between Gross National Product, Total Construction Sales and General Construction Sales, in Current Dollars by Years	8
2.	Relationship between Total Construction Industry Sales and General Construction Sales, in Constant Dollars by Years.	9
3.	Construction Procedure as Illustrated in Chart Form	14
4.	Correlation Between Total Construction Industry Sales and General Construction Sales, in Current Dollars	20
5.	Organizational Chart for the Newly Formed General Contractor	28
6.	Organizational Chart for the Medium Sized General Contractor	33
7.	Organizational Chart for the Nation-Wide General Contractor	61

ABSTRACT OF THESIS

Title of the Thesis: A STUDY OF THE AFFECTS OF GROWTH UPON THE ORGANIZATIONAL RELATIONSHIPS OF A GENERAL CONSTRUCTION COMPANY

Name of Author: Peter C. Darin, Jr.

Submitted to the School of Industrial Management on May 6, 1960 in partial fulfillment of the requirements for the degree of Master of Science.

The general construction segment of the construction industry was responsible for \$14 billion of the total industry's 1959 sales of \$54 billion. However, even the largest general contractor is a comparatively small company. In 1958 only a little over one percent of the volume of the general construction segment was put in place by the largest general contractor. The principal reason for the comparative smallness of the market share of a typical general contractor has been that the firm's life expectancy has been limited to two or three generations of management. The company's area of operations has usually been limited to a radius of about two hundred miles from its main office. The companies have been family-owned and originally were dominated by a single individual, the founder. Since World War II, however, there have been several firms that have increased their area of operations to include large sectors of the United States. In order to efficiently operate throughout these areas, branch offices have had to be opened. The use of the branch offices has focused more light on the problems of the general contractor. This is especially true of the contractor who is trying to expand to the point where he can operate in any major city with the same effectiveness with which he functions in his head-quarter's area.

The problems that have become more pronounced because of this expansion cover a broad area. There are the problems concerned with union relations, finance, acquisition of new customers, new suppliers, and sub-contractors, etc. However, this thesis will center its attention on the problems associated with general contractor internal organization relationships, a broad subject in itself. Therefore, the thesis is limited to the derivation of a set of general principles to be applied to these organizational relationships. These principles are set in the framework of a general contractor desiring to operate on a nation-wide basis with a number of branch offices. The importance of the central problem was well substantiated by the interviews. The executives interviewed also helped to specify the four main areas within the central problem of the thesis.

The problem areas are discussed in Chapters V through VIII, in consecutive order. First there is a chapter dealing with the selection of the proper type of organizational structure available to the geographically decentralized contractor. Chapter VI is devoted to the relationship of the chief executive and his immediate subordinates.

Closely related to this subject matter is the next chapter, in which the relationships between the headquarter's line and staff officers and the branch and project officers is investigated. Chapter VIII concludes the problem studies with a look at the problem of recruiting, training and retaining the men who will be needed to manage an expanding enterprise.

The material for the thesis was derived from two sources. The first consisted of the written material that was available. This source was limited somewhat because of the complete lack of written material concerning the construction industry. The bibliography will show that the books read fell into two classifications. First, the written material that is concerned with the theoretical implications of delegation, decentralization, types of organizational structure, control, and other aspects of the central problem. Secondly, the books concerned with the solutions that industries similar to construction have employed. This theoretical material has been integrated with the author's experience and the information that was available through interviews.

The second major area of research material was obtained by interviews. The interviews were confined to the chief executive officers of general construction firms. The firms were selected from a list of the top eleven general contractors operating in 1958. The firms operate primarily throughout the eastern half of the United States. The interviews generally extended well beyond the two hours originally requested because of the subject's interest in the various parts of the problems.

In setting the problems within the background information, it became evident that the present contractor functions with all responsibility, authority and power held in the headquarter's office and primarily in the hands of the chief executive officer. Chapter IX, the concluding chapter summarizes the major conclusions. The ideal company will employ the principles of management by geographical divisions. The principle reason for this is that, because of the continual increase of sales in the local branch, the branch manager must be vested with as much control of local operations as possible. Secondly, the president of the nation-wide construction company will have to delegate his responsibilities, authority and power to his subordinates as much as possible principally in consideration of the chief executive's physical limitations. This chapter concerning delegation is the most important of the thesis because the arguments for and against delegation play a large part in determining the remainder of the conclusions. For reasons similar to those stated for the employment of the principles of management by geographical divisions and delegation, the nation-wide construction firm will be most effective if highly decentralized. Thus, the headquarter's line and staff officers will relinquish a great deal of their responsibility and authority to the branch and project officers. Our last problem chapter emphasizes the importance of developing a formal over-all plan for the general contractor's recruiting, training and retention of personnel to provide for the expanded managerial needs of the firm.

Thesis Advisor: Houlder Hudgins
Title: Professor of Industrial Management

CHAPTER I

INTRODUCTION & SUMMARY

History and Background

The general public normally associates the construction industry with the contractors who construct their houses. This thesis is concerned with that sector of the industry in which the general contractor operates. As defined in the paper, the term "General Contractor" refers to a firm whose primary construction activity centers in the sectors titled, Private and Public non-residential building (non-farm), by the United States Departments of Labor and Commerce. The construction industry put in place \$54 billion of facilities in 1959, and the general construction segment of the industry was responsible for about \$14 billion of this total. However, even the largest general contractor is a comparatively small company. In 1958 only a little over one percent of the volume of the general construction sales was put in place by the largest general contractor. The forecasted volume for 1970 is approximately \$24 billion for the general construction segment.

The principal reason for the comparative smallness of the market share of a typical general contractor has been that the firm's life expectancy has been limited to two or three generations of management. The company's area of operations has usually been limited to a radius of about two hundred miles from its main office. The companies have been family-owned and originally were dominated

by a single individual, the founder. Since World War II, however, there have been several firms that have increased their area of operations to include large sectors of the United States. In order to operate efficiently throughout these areas, branch offices have had to be opened. The use of the branch offices has focused more light on the problems of the general contractor. This is especially true of the contractor who is trying to expand to the point where he can operate in any major city with the same effectiveness with which he functions in his headquarter's area.

The problems that have become more pronounced because of this expansion cover a broad area. There are the problems concerned with union relations, finance, acquisition of new customers, new suppliers, and sub-contractors, etc. However, this thesis will center its attention on the problems associated with general contractor internal organization relationships, a broad subject in itself. Therefore, the thesis is limited to the derivation of a set of general principles to be applied to these organizational relationships. These principles are set in the framework of a general contractor desiring to operate on a nation-wide basis with a number of branch offices. The importance of the central problem was well substantiated by the interviews. The executives interviewed also helped to specify the four main areas within the central problem of the thesis.

The problem areas are discussed in Chapters V through VIII, in consecutive order. First there is a chapter dealing with the selection of the proper type of organizational structure available

to the geographically decentralized contractor. Chapter VI is devoted to the relationship of the chief executive and his immediate subordinates. Closely related to this subject matter is the next chapter, in which the relationships between the headquarter's line and staff officers and the branch and project officers is investigated. Chapter VIII concludes the problem studies with a look at the problem of recruiting, training and retaining the men who will be needed to manage an expanding enterprise.

Research Methods

The material for the thesis was derived from two sources. The first consisted of the written material that was available, principally in the library. This source was limited somewhat because of the complete lack of written material concerning the construction industry, and especially the general construction sector about whom there was no written material that concerned itself with the specific problem of the general contractor. The bibliography will show that the books read fell into two classifications. First, the written material that is concerned with the theoretical implications of delegation, decentralization, types of organizational structure, control, and other aspects of the central problem. Secondly, the books concerned with the solutions that industries similar to construction have employed. This theoretical material has been integrated with the author's experience and the information that was available through interviews.

The second major area of research material was obtained by interviews. The interviews were confined to the chief executive officers of general construction firms. The firms were selected from a list of the top eleven general contractors operating in 1958. More information concerning the five firms interviewed is contained within the main body of the thesis. The firms operate primarily throughout the eastern half of the United States. The interviews generally extended well beyond the two hours originally requested because of the subject's interest in the various parts of the problems.

Major Conclusions

In setting the problems within the background information, it became evident that the present contractor functions with all responsibility, authority and power held in the headquarter's office and primarily in the hands of the chief executive officer. Chapter IX, the concluding chapter, summarizes the major conclusions.

The ideal company will employ the principles of management by geographical divisions. The principle reason for this is that, because of the continual increase of sales in the local branch, the branch manager must be vested with as much control of local operations as possible. Secondly, the president of the nation-wide construction company will have to delegate his responsibilities, authority and power to his subordinates as much as possible, principally in consideration of the chief executive's physical limitations. This chapter concerning delegation is the most

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CHAPTER II

CONSTRUCTION INDUSTRY BACKGROUND

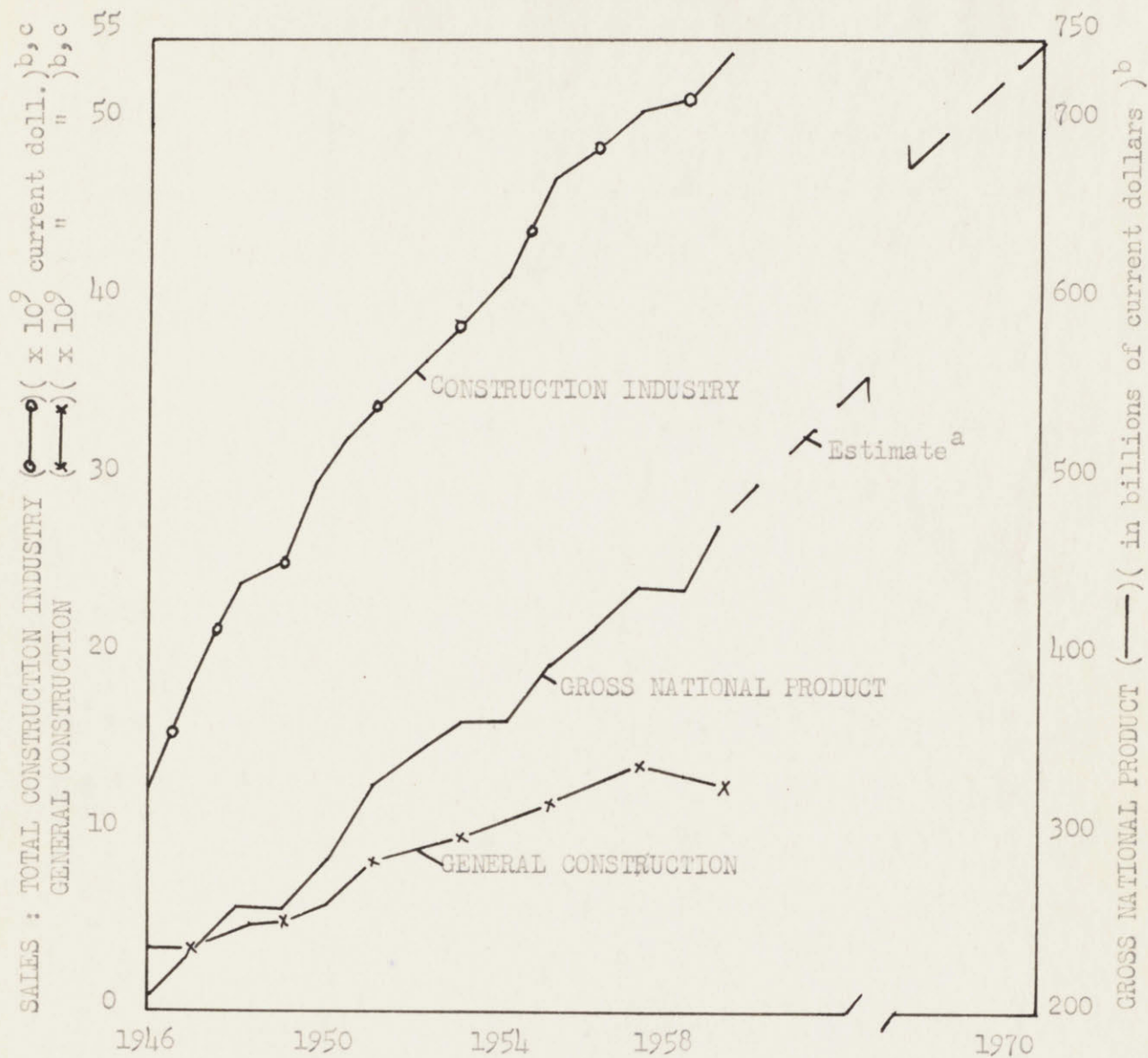
The sales volume of the construction industry usually varies between nine and thirteen percent of the nation's Gross National Product. With this annual sales volume there can be little doubt that the industry, considered as a whole, is one of the country's principal capital goods industries. However, there is a dearth of understanding of the industry's size, function, components, etc. This fact was clearly evident during the research period of this thesis, in that there is almost a complete lack of reference material concerning the construction industry. This lack of awareness of the construction industry is also evident among the general public. The reasons for this lack of information are many and varied. However, they can be attributed mainly to the large number of companies in the industry and their relatively small individual business volume. This size problem along with the industry's uncooperative attitude toward giving information has probably led many enquirers to shy away from any studies of the industry that they might have contemplated. It is because of this lack of understanding of the industry by the general public that this chapter is included. With the reference points provided by this chapter, it is hoped that the thesis will be made more comprehensible.

The Industry

As portrayed in Figure 1, New Construction Put in Place by the entire industry in 1959 was in the vicinity of \$54 billion. This figure would appear to indicate an eleven percent increase over the sales volume of 1958 and a sixteen percent increase over the all time construction activity peak year of 1955.¹ However, when the annual sales are put on a constant dollar basis, it becomes evident that this apparent increase is misleading. (See Figure 2) In constant dollar terms the industry did increase its sales by 104 percent during the period from 1946 until 1955. This large increase has been attributed to the Depression and World War II. During the depression years neither industry in general nor the public at large was able to replace or originate new facilities because of either a lack of investment funds or a lack of the market for the facilities. This situation was changed by World War II. Wartime restrictions were such as to cause both the public and industry to accumulate money because of their inability to spend their increased earnings. Industry was allowed to replace or originate only those facilities required for the war effort. This created a pent-up demand for industry facilities to produce peace-time goods. In addition to desiring these peacetime goods, the public wanted to build new housing. With the end of many of the war-time restrictions in 1946, the war-accumulated funds helped to finance a construction

1. United States Department of Commerce, Construction Review, Vol.5 (Washington: Government Printing Office, June 1959), p.4.

FIGURE 1

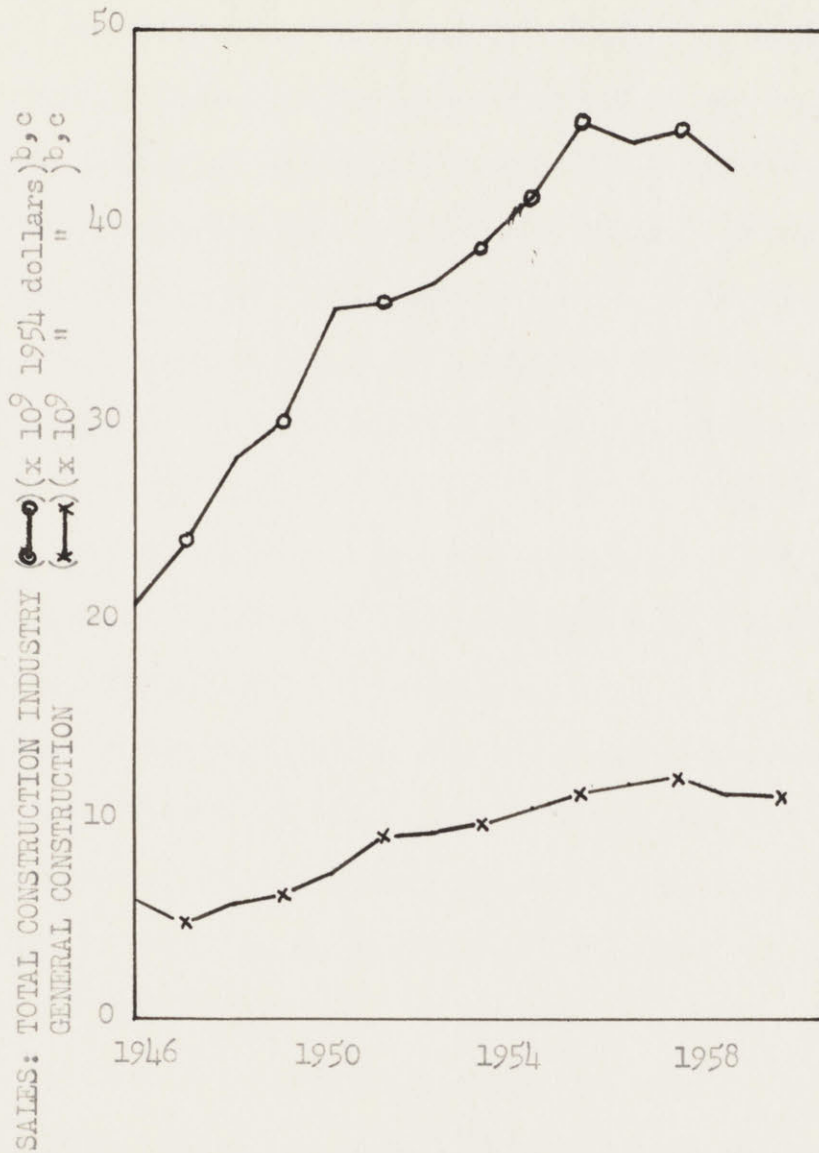
G.N.P. & Construction Sales

a. " When a Forecast on the Labor Force Gets into Politics,"
Business Week, (February 13, 1960), p.57.

b. U.S. Department of Commerce, U.S. Income and Output,
 (November, 1958).

c. U.S. Department of Commerce, Construction Review, Vol. VI, No.1,
 (January, 1960).

FIGURE 2

Construction Sales

b. U.S. Department of Commerce, U.S. Income and Output, (November, 1958).

c. U.S. Department of Commerce, Construction Review, Vol. VI, No. 1, (January, 1960).

industry boom. Figure 2 indicates that this need for new and re-furbished facilities lasted during the boom period of 1946-1955. Since 1955, the construction industry volume has been decreasing.

The construction industry is also one of the biggest of the nation's employers. During the year of 1959, the industry employed the services of 2,756,000 persons (seasonally adjusted), the majority of whom were men.¹ The peak year of 1956 saw 2.9 million employed in construction. However, since then the total has been gradually dropping year after year. This drop can be attributed to two factors. The industry volume has been dropping, but in addition the mix of the volume has been changing to the point where there is a larger proportion of purchased material to purchased labor required in the construction process.

As was previously mentioned, the construction industry is made up of a vast number of contractors. In the most recent estimate of the population of construction-affiliated contractors, made by Business Week in 1957, the range of 450,000 to 475,000 contractors is mentioned.² This large number of companies contains many firms that are only slightly related to construction. With this in mind we will use this point of the text to reduce the scope of our background search to the area of the industry with which the main section of the thesis will deal.

1. Ibid, p.36.

2. "Off-Beat Men for Off-Beat Jobs", Business Week, (July 20, 1957), pp.166-172.

General Contractors

As a definition for use in this paper, the term General Contractor will refer to a firm whose primary construction activity centers in the sectors titled Private and Public non-residential building (non-farm), by the U. S. Departments of Commerce and Labor.¹ This sector includes the construction of industrial, commercial (offices, stores, restaurants, etc.), religious, educational, and institutional type buildings. Although all general contractors operate in this category, they also maintain some activity in the other categories of construction which are: Private or Public residential; Private farm and public utilities; and Public military facilities, highways, sewer and water systems, public service enterprises, and conservation and development.

During the year ending December 31, 1959, the general contractors' billings are estimated to have been \$13.2 billion. This sales figure is somewhat below the 1958 total of \$13.3 billion and the peak sales year of 1957 when \$14.0 billion worth of new construction was put in place.² In referring to Figure 2 it can be seen that in terms of constant dollars the general construction sector of the industry has also profited from the large growth in construction activity since 1946. Moreover, it is evident that the general contractor arrived at his peak sales in 1957 and has dropped his sales volume by eight percent since then.

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1. United States Department of Commerce, U. S. Income and Output, (Washington: Government Printing Office, November 1958), p.190.
 2. Ibid, p.160.

Again referring to Business Week, it is estimated that the \$14 billion worth of 1959 general construction was performed under the coordination of approximately 9000 general contractors.¹ If the 1957 and 1958 surveys of general contractors conducted by Architectural Forum can be considered as an indication of what their 1959 survey will show, then it can be assumed that only about twelve percent (or \$1.58 billion) of all general construction work put in place in 1959 will have been included in the sales volume of the 100 biggest general contractors in the United States.^{2,3} To further break down the statistics to show the comparatively small nature of the companies that make up the general construction industry, it might be pointed out that the two largest general contractors in the United States each performed only about one percent of all general construction in 1958. The two general contractors mentioned are the George A. Fuller Company and the Turner Construction Company, both of New York City.

Construction Procedure

In order to study the organizational requirements of a construction firm properly, a good understanding of construction procedure is a pre-requisite. Therefore, this section is to be devoted to a study of the functions performed by various participants in the construction process, beginning with the owner's request for construction. The sources for this general outline are the

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1. "Off-Beat Men for Off-Beat Jobs", op.cit., p.170.
 2. "Buildings Biggest Contractors", Architectural Forum, (Nov. 1958).
 3. "The 100 Biggest Contractors", Architectural Forum, (Nov. 1959).

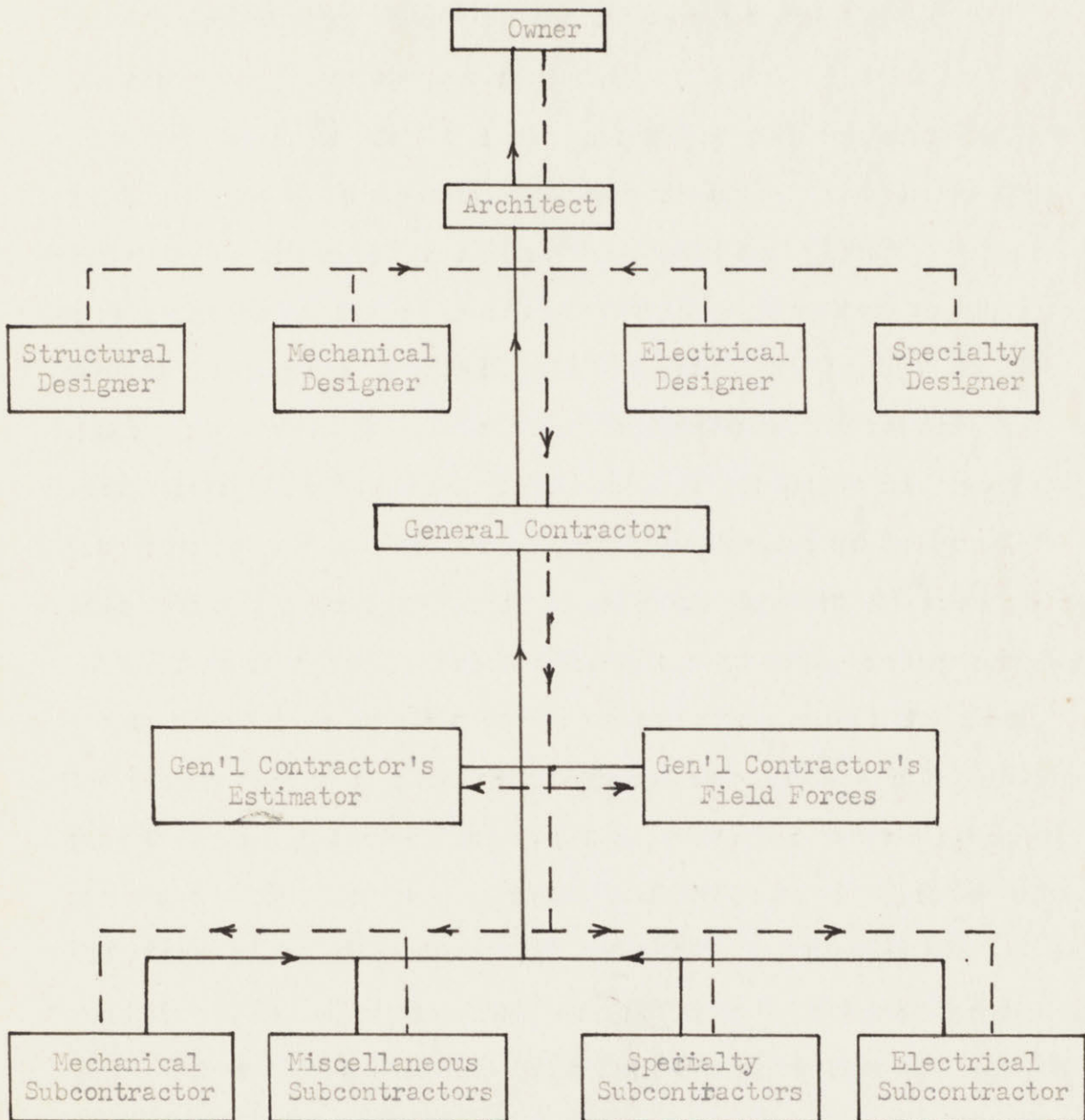
interviews conducted in connection with the thesis research, the author's personal experience while working in construction for over ten years, and a construction industry survey conducted by Professor E. H. Schell of M.I.T.¹

As was mentioned previously, the process is generally initiated by an owner (customer) when his company generates a need for a new or remodelled facility. (In the section of the construction industry under consideration, the financing of the facility is generally assumed by the owner.) When the owner has a general idea of the type of facility he wants, he selects an architectural firm to work with (Figure 3). The selection of the architect is usually done through either an informal design competition or through references from previous customers of the architect. Most architectural firms will sub-let the specialty design items (i.e., structural, electrical, mechanical, etc.) to outside firms. The architect will be responsible for the coordination of the resultant plans and specifications delivered to him by the specialty firms into a complete set of plans and specifications which are acceptable to the owner. The next step of the process is the selection of a general contractor to perform the actual construction.

Most of the information circulated throughout the construction industry is by means of the F. W. Dodge Company's reports. These reports are published and distributed to each of the

1. Erwin H. Schell, "Readings in Contracting Management", (Cambridge: Massachusetts Institute of Technology, 1930).

FIGURE 3



Code : (---) Information via Plans and Specifications
 (—) Construction Activity

subscribing companies daily. Most subscribers will request only the notices for particular types of construction within certain geographical areas. Beginning with the first intimation of the possibility of construction and ending with the facility's completion, each and every bit of information concerning the facility is incorporated in the daily notice sent to the subscriber. Of course there is also the word-of-mouth route, newspapers, periodicals, etc. that also spread the information of the industry, but basically the F. W. Dodge Reports are the source of information.

Primarily, the selection process is one in which the general contractors are pre-qualified (or pre-selected) by the owner with the help of the architect. Then the selected general contractors (varying from three to twelve generally) are asked to submit a firm proposal, on a certain date, not later than a specified time. The general contractor in turn requests several specialty sub-contractors in each of the various trades (varying from three on an industrial type building to fifty on a laboratory type building) to submit firm proposals, in accordance with plans and specifications to him, by a specified time on a certain date. (The specialty sub-contractors of course submit proposals to more than one general contractor.) Prior to the bid date the general contractor's estimators will have quantified, priced and summarized all of the items required by the owner's plans and specifications that are not to be included in the sub-contractors' bids. On the date that the proposal is due, the selected specialty sub-contractors' bids are combined with the general contractor's estimate and submitted as a sealed lump sum price to the owner.

The owner with the architect will then select the general contractor to perform the work. The owners and architects give varying degrees of priority to (1) the contractor's price (2) his promised schedule of completion, and (3) the relative degree of quality of his prior performances. Once the selection has been made, the architect (sometimes with help from the owner) assumes the role of inspector in an effort to deliver to the owner a facility, meeting as closely as possible, the plans and specifications which have been approved by the owner. It goes without saying that the amount of inspection required varies with the degree of confidence that the architect has in the selected general contractor.

Upon notice of his proposal being accepted, the general contractor must then perform several actions in order to start construction. The contractor's estimator must award specific contracts to one specialty contractor in each sub-trade, and the purchasing department must confirm, with purchase orders, any material prices requested during the bidding period. At this point the project is turned over to the field supervision department. The general field superintendent will then assign a project superintendent along with a field layout engineer and the foremen to supervise the trades to be handled directly by the general contractor. The direct labor forces of the general contractor consist of the trades required to erect masonry, place concrete, install reinforcing steel and install wood framework to mold the concrete. It is then the project superintendent's responsibility to procure the proper journeymen and laborers, either through field hiring or more likely by transfer from

other company projects. He is also responsible for obtaining the required equipment, either rented or more likely from a company storage depot.

With the project under way, it becomes the project superintendent's responsibility to complete the job as the contractor's representative. The superintendent will generally perform his function with a minimum of aid from the central office staff, other than the handling of paperwork. As part of his co-ordinating the superintendent will schedule and supervise the work to be performed by the sub-contractors. The superintendent will submit monthly performance statements to the owner through the architect for payments. The owner will pay the contractor monthly, but hold back a retainer of ten percent until the final completion. For a period of one year after the contract is accepted by the owner, the contractor must make good any defects due to improper workmanship or faulty materials. After the one year period the legal relationship ends, although most contractors will still continue their guarantee on an informal basis.

As a matter of proper understanding it might be pointed out that there are other types of contracts entered into between owners and contractors. There is the cost plus fixed fee contract. In this type of a contract the owner pays for all substantiated direct material and labor costs in addition to a fee to reimburse the contractor for his overhead and profit. The fee can be a percentage of the direct cost, or it may be a fixed lump sum, with no relationship to the direct cost. There is also the composite rate type of

contract wherein the owner is furnished with hourly rates which include all of the contractor's charges for overhead, profit, etc. These rates cover each trade and each type of equipment that might be used. All materials are paid for on a cost-plus basis. The owner, generally with help from the contractor's superintendent if requested, then has complete supervisory control of the project and can pre-determine the cost of each of his actions or orders.

Before we leave the present background conditions of construction to look into the future of the industry, it might be well to comment on a development that has become somewhat more pronounced since the end of World War II. That movement is the use of one agency to perform the work of both the architect and the general contractor. The Austin Company is a prime example of such a concern. The proponents of this type of construction procedure maintain that it allows the owner the use of his facility at an earlier time because the construction can be commenced prior to the completion of thorough plans and specifications. In addition it is maintained that there is a saving in the fee that is charged by the architectural firm. The opponents of this type of construction point out that an owner may use either the cost-plus or the composite rate type of contract if he wishes to start construction before the facility is completely designed. They also state that the one agency type of procedure lacks the economies of competitive bidding, and the "arms-length" inspection generally performed by the architectural firm.

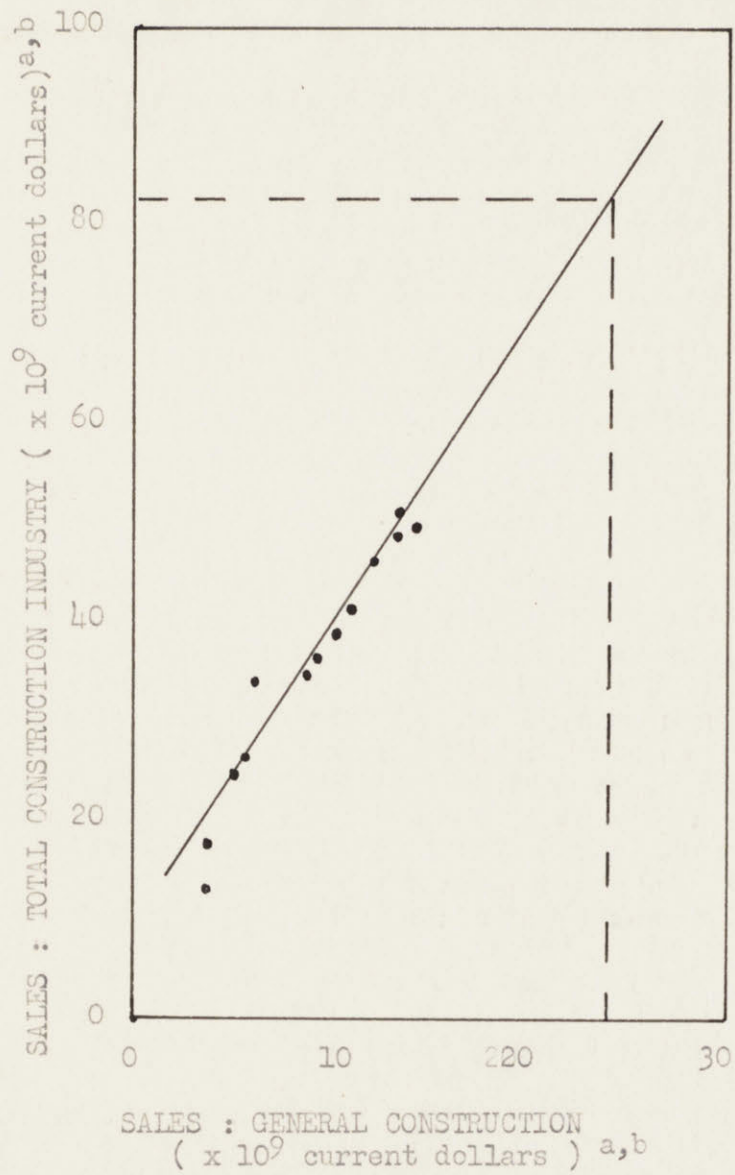
General Construction's Future

The United States Labor Department has forecast a 1970 Gross National Product of \$750 billion, as shown in Figure 1. Assuming a relative percentage between Gross National Product and construction industry sales of eleven percent, the sales volume of the construction industry in 1970 should be approximately \$82.5 billion. If the trend line shown in Figure 4 is then used, a sales volume for all general contractors will be approximately \$24 billion in 1970. However, from the following statement made by Dexter M. Keezer, it would appear that the sales volume of the general contractor should be well above that indicated by the trend line:

"We submit, however, that there are now new elements shaping business investment in the United States which promise to make it possible to sustain it on an expanding and relatively even keel over the decade ahead, thus extending the postwar record of growth, while eliminating what has been a major if not most important single contributor to disastrous ups and downs of business. As they effect perspective need of more and better capital equipment to meet production requirements, these elements include: 1) striking shrinkage, relatively, in the hours of labor available to meet the production requirements of a rapidly expanding population, thus creating a scissor-like pressure for more capital equipment, 2) a formidable backlog of over-age and antiquated facilities that must be replaced if we are to make the required gains in industrial production, 3) an increasing heavy requirement for investment in industrial equipment to: a) cope with the increasing difficulty of obtaining industrial material such as crude oil and iron ore, and b) prevent or eliminate community hazards, such as pollution of air and water by industrial operations, and reduce the risk of injury on the job for workers directly involved in these operations.

Perhaps most important, both in terms of the need for better capital equipment and the incentives for installing it, is the issuance of the continuing flood of design of new and better products, processes, and equipment from

FIGURE 4

Construction Sales Correlation

a. a. U.S. Department of Commerce, U.S. Income and Output, (November, 1958).

b. U.S. Department of Commerce, Construction Review, Vol. VI, No.1, (January, 1960).

research and development laboratories. Coupled with business competition, these new developments create their own new and special need for capital equipment. They are, in fact, largely responsible for what can perhaps be termed a new industrial revolution in the field of production. Moreover, they offer strong and demonstrative profit incentives to get in on this revolution." ¹

Although Mr. Keezer's statement appears to be strongly optimistic, the reasoning is quite valid. So that it would appear the sales activity available for a general contractor during the next decade will be steadily increasing.

Another item that will probably be of as much importance to the general contractor as his increased sales opportunity, will be the change in construction methods, equipment and materials. Since the end of World War II, we have seen the emergence of two major materials which have in turn led to the conception of new methods and equipment. The first and probably that of most importance to the general contractor is the precast concrete unit. The mainstay of the work performed by the general contractor's forces has normally been the erection of concrete formwork, the installation of reinforcing steel in the forms and the pouring of the concrete. With the entry of the precast concrete member, the first substantial indication of a developing change in construction methods and materials has appeared. A major factor in promoting this change has been the increasing awareness of both architects and contractors that it is possible to ease the harassing effect of weather on construction activity. The rapidly improving design of precast

1. Dexter M. Keezer, New Forces in American Business (New York: McGraw-Hill Company, 1954), pp.18-19.

(including both pre-stressed and post-tensioned) concrete has allowed architects to design facilities using concrete units that can be poured either during prior periods of good weather or in enclosed, heated buildings. The precast members also allow for the greater use of production line principles.

The second new material is the prefabricated exterior, as well as interior, wall panel. This has affected a second function that the general contractor has traditionally performed with his own forces. Masonry construction, especially of exterior walls, has suffered appreciably, as is evidenced by the predominant use of wall panels on most new major buildings. The use of these panels further substantiates the growing awareness of the weather and production line advantages, that architects and contractors have found in the use of pre-fabricated items. However, the increasing use of these panels also emphasizes the advantage of using factory rather than field forces in the construction process. The factory wage rate is decidedly less than the current journeyman mason's wage rate of \$3.98 per hour. In fact the lowest wage rate, that of the laborer, is currently \$2.95 per hour. To reduce the effect on costs of the increasing construction field labor demands, the architects have turned to the design and use of pre-fabricated wall panels that can be built with the lower priced factory labor.

This change in the materials, methods and equipment is not limited to the work normally performed by the general contractor, but it is also beginning to affect the work of the various specialty

sub-contractors. If this trend is continued to its logical end, facilities may eventually be entirely pre-fabricated, with assembly only in the field. It is obvious that all items of construction cannot be pre-fabricated (footings, etc.). However, there is sufficient basis to conclude that the general contractor's role in the construction process may change appreciably. Two likely routes would seem possible. First, the contractor could become a straight broker. Secondly, he might undertake to perform with his forces some or all of the field assembly, or he might even go into the precasting (i.e. Gilbane Building Company) and pre-fabricating business. However, it is not the purpose of this paper to investigate the exact nature of the future business, but only to indicate some possibilities, which might aid in the study of the company's future organizational requirements.

This chapter has been included in order to fill the reader in on the little known facts concerning the construction industry. Also we have covered the background of the general contractor, the construction process, and some projections of the possible future sales volume and activities of the general contractor. Our next chapter will carry us further by explaining the manner in which the organizational relationships within the general contractor's company have developed.

CHAPTER III

ORGANIZATION OF A GENERAL CONTRACTOR

Now that the background of the construction industry as a whole, and of the general contractor in particular has been developed for the reader, the area of study can be somewhat narrowed to that of a single general contracting organization. Although the history of a particular general contractor will be the main source of this information, it is sufficiently similar to that of other contractors to serve as a model.

The Organization at Inception

Our model company, Darin & Armstrong, Inc. was organized in Detroit, Michigan in 1936. As is so often the case in the construction industry, the principal had formerly been employed by an older construction firm. (This is one of the organizational problems of a contractor.) The reason for this continual break-away has been well stated by the head of one of the country's major firms when he said:

"I've got a lot of capable men around here. But I don't know. If they were capable of really running this business the way it's got to be run, with the knowledge they got, they'd have gone off on their own by now." ¹

Thus, with a minimum of money (\$20,000) the company was able to start a business. However, although money is important, the main ingredient

1. "Off-Beat Men for Off-Beat Jobs", Business Week, (July 20, 1957), p.174.

of success for the new general contractor is his personal relationship with a number of people.

First, and probably the most important, is his relation with the owner or customer. In the case of our model the principal customer was a division of a major automobile company. This successful relationship had been developed while the new founder was with his old firm. The customer had developed great confidence in the man's ability to deliver, for a fair price, a high quality facility in the shortest possible time (a pre-requisite in the auto industry). Thus, with the prior confidence in the individual carried over to the infant company, Darin & Armstrong was allowed to bid competitively with the old, established firms. In addition, the customer could be counted on for advance payments, or as a bank reference, whenever the young firm was in financial difficulties.

As an example of the confidence in the particular man that is usually generated, the following excerpt has been taken from a Fortune article concerning Mr. Charles E. Daniel, President of Daniel Construction Company:

"Daniel's stature as a contractor is impressively endorsed by his clients, who are important, competent business executives. They say that he does superior work at low cost and incredible speed; that he is a magnificent salesman, a hard driver, an organizer and expeditor second to none. They say that he is not only trustworthy but he gives services far beyond those specified in his contracts." ¹

1. F. Lincoln, "Northerners Surrender to Charlie Daniel", Fortune, (October 1954), p.145.

In Professor Schell's paper, he points out some reasons for the owner's great concern with the progress, quality and cost of his new facility when he quotes from "Waste in Industry" - a report prepared for Mr. Herbert Hoover.

"Unlike manufacturing operations each building project requires special work, both architectural and structural. Buildings are erected for numerous purposes and designs are tempered to suit the fancy of the architects and owners. Each building, therefore, may be compared to a special order with new specifications going through a factory. Yet this variety can scarcely be termed uneconom-ic or wasteful, since from the artistic viewpoint the extra expense of diversity of architecture and types of construction is warranted." ¹

Then, there were the architectural firms who felt that they could rely on Darin & Armstrong because of their previous relations with its president; and it was these architects who could recommend to their customers that the new company be allowed to submit a proposal. The principal's prior relations with specialty sub-contractors and material suppliers also served the company well after incorporation. In many cases friendships had previously developed between the new president and important factors within the sub-contracting and supplier organizations. This close relationship allowed the new firm to obtain extended credit and, in some cases, price advantages during the bidding period.

Although most companies in construction were not organized by the union as early as 1936, it was shortly thereafter that the general contractors were induced (by the Public Works Administration) to sign closed shop contracts with the unions. It should be of no

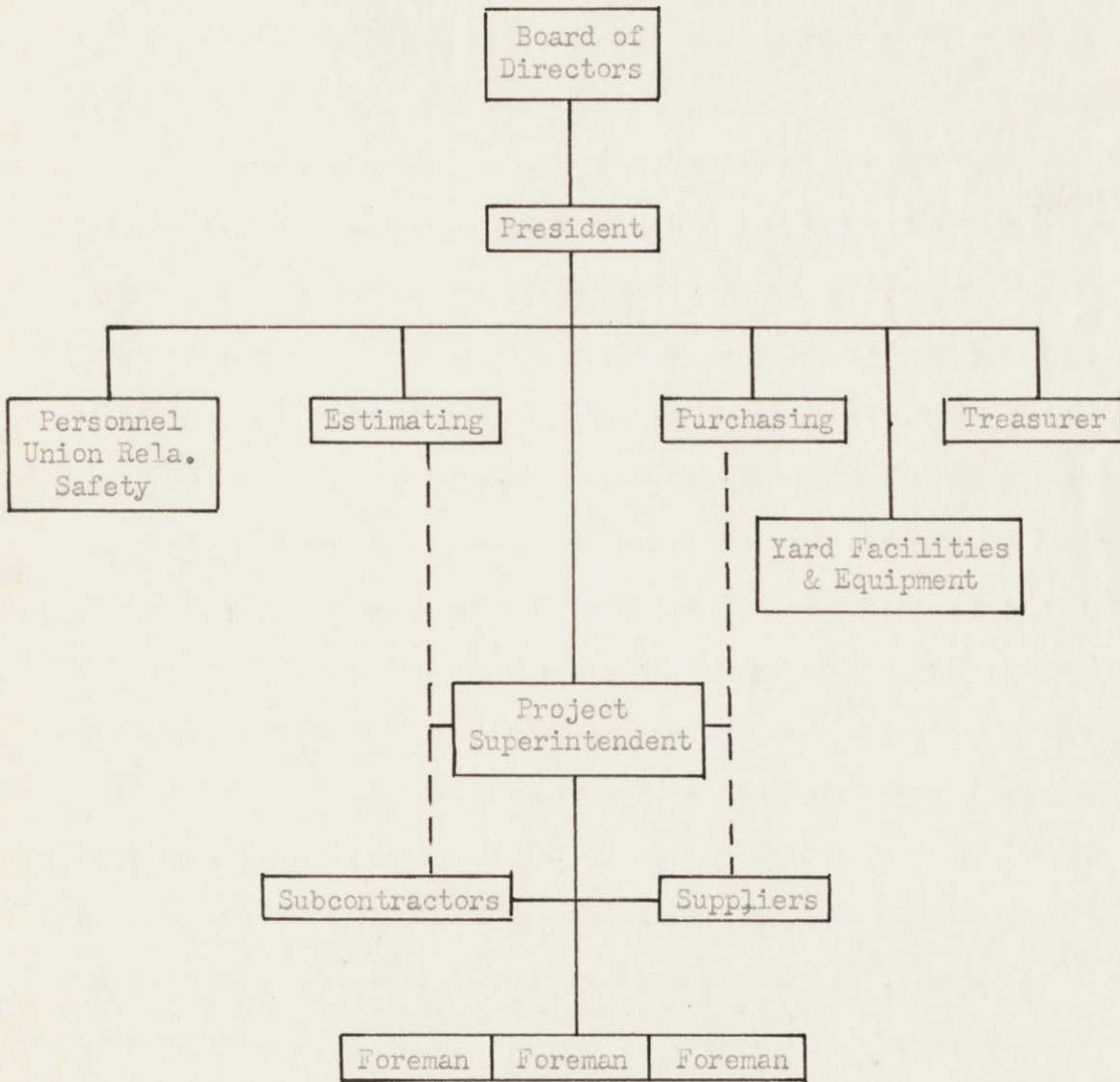
1. Erwin H. Schell, "Readings in Contracting Management", (Cambridge: Massachusetts Institute of Technology, 1930).

surprise to the reader that, here again, Darin & Armstrong's relationship with the unions was conducted through the company's president. Thus it can be stated with little doubt that the company's relationships with exterior influences generally originated during the founder's prior business employment and subsequently were maintained by him.

The external relationships, though, were not the only ones that depended on the personal reputation of the company's founder. When Darin & Armstrong was organized it included many men who had resigned with the founder and followed him into the new company. The first line of management, including many of the project superintendents had formerly worked for the principal in his previous position. In organizing the new firm, no formal organization was developed. As illustrated in Figure 5, the president had five staff department heads reporting directly to him. In addition he assumed the direction of all field forces by having the project superintendents report directly to him daily. With the exception of the estimators, all of the first line management (and the president) had developed their job capabilities exclusively by means of years of field experience. The educational background of all of these men with the exception of the estimators was either a grade or high school education.

The chief estimator selected the projects to be bid and generally decided the amount of overhead and profit to be added to the estimate of cost when submitting a proposal. This function was sometimes limited when the president voiced his opinion on a critical

FIGURE 5



bid. The remainder of the personnel reporting to the president could almost be classified as clerks. The reason for making this statement lies in the acknowledged fact that all decisions, except possibly those of a routine nature, were made by the president. This was in most cases due to two factors. First, all outside contacts were generally handled by the president so that any matter which concerned an external factor had to be brought to the president's personal attention. Secondly, because their knowledge was necessarily limited to the experience they had previously obtained, in many instances the president found that their business knowledge was severely lacking. This lack of knowledge was generally most evident when new situations appeared during the company's growth. Although some of the causes for the lack of confidence in his subordinates can be laid at the feet of the president himself, it is nevertheless a fact that the president generally used his subordinates as clerks. (Here, again, is an organizational problem for the larger contractor.) As an illustration of his love of work and the attitude of the president toward his subordinates, the following excerpt is quoted:

"As a matter of fact, Daniels is an intensively impatient man and occasionally explosive of temper. The explosions, however, are confined to his own staff; among clients or prospects he never permits himself to stray from sweet reason.

Charlie Daniels is a worker who knows, cares about, and does almost nothing but work. He has no hobbies, sports, or pastimes. (. . .) He belongs to the Augusta National Golf Club and the Biltmore Forest Country Club in Asheville, but he plays no golf. (. . .) On Saturdays Daniel works. On Sundays, when most of the good people of the Bible Belt go to church, Daniel works. He empties the company mailbox at the city post office, and carts the bundle to his office. There he opens, reads, and sorts every letter, bill, or notice addressed to himself or his staff of about fifty.

He says this keeps him in touch with what goes on. He agrees that his staff should have adequate time off so long as it does not interfere with their work, but he cheerfully admits that 'around here we don't let vacations get in the way of business'.¹

Although the above quotation is from an article on the later growth of the Daniel Construction Company, it illustrates the outlook of the president of Darin & Armstrong.

Because of the extraordinary growth rate experienced by Darin & Armstrong during the founder's active career, it will be better to leave the study of the model's growth for a while because it is exceptional in this respect. In the majority of construction companies there are many different items that retard the growth rate of the company; and one of limitations on the company's rate was the founder himself. At the end of his active career the owner-founder generally found his company still operating on a large scale volume only in the main office area with no expansion to other geographical areas. When he left the company, the company failed or ceased to exist because of a lack of leadership. Although this still has great importance today, of even more importance is the effect of inheritance and estate taxes. When the head of a company dies, because his estate consists almost exclusively of stock in his company, the company has to be liquidated in order that sufficient monies can be accumulated with which to pay the taxes. It is extremely rare that a construction company can be sold.

1. F. Lincoln, op.cit., p.146.

Another factor that has played a major part in limiting the area of operations, has been the lack of operating experience in the new market area. This in itself presented two obstacles. First, there was insufficient labor cost data with which to prepare reliable estimates; and, secondly, customers were not available to outside companies without a known reputation for dependable work. Then, too, although it required only a small amount to enter business, bank loans were unavailable to many small companies; and the president was usually unwilling to gamble his retained earnings in a new area where the chance of success was even less likely than it was in his home area.

In the case of Darin & Armstrong, the founder was forced to retire in 1949 by a brain hemorrhage. This could have proved disastrous. However, the new president has been aided in the transition period by several factors: (1) the successor was a strong individual, (2) there was an eight-year period of an abundance of construction work available, (3) because the founder did not die, the company was not called on for a large cash outlay to retire his stock, and (4) it was possible to transfer controlling interest to the successor. Thus, the model company was able to avoid the pitfalls that generally cause construction companies to die when the founder is removed.

The Medium Sized Organization

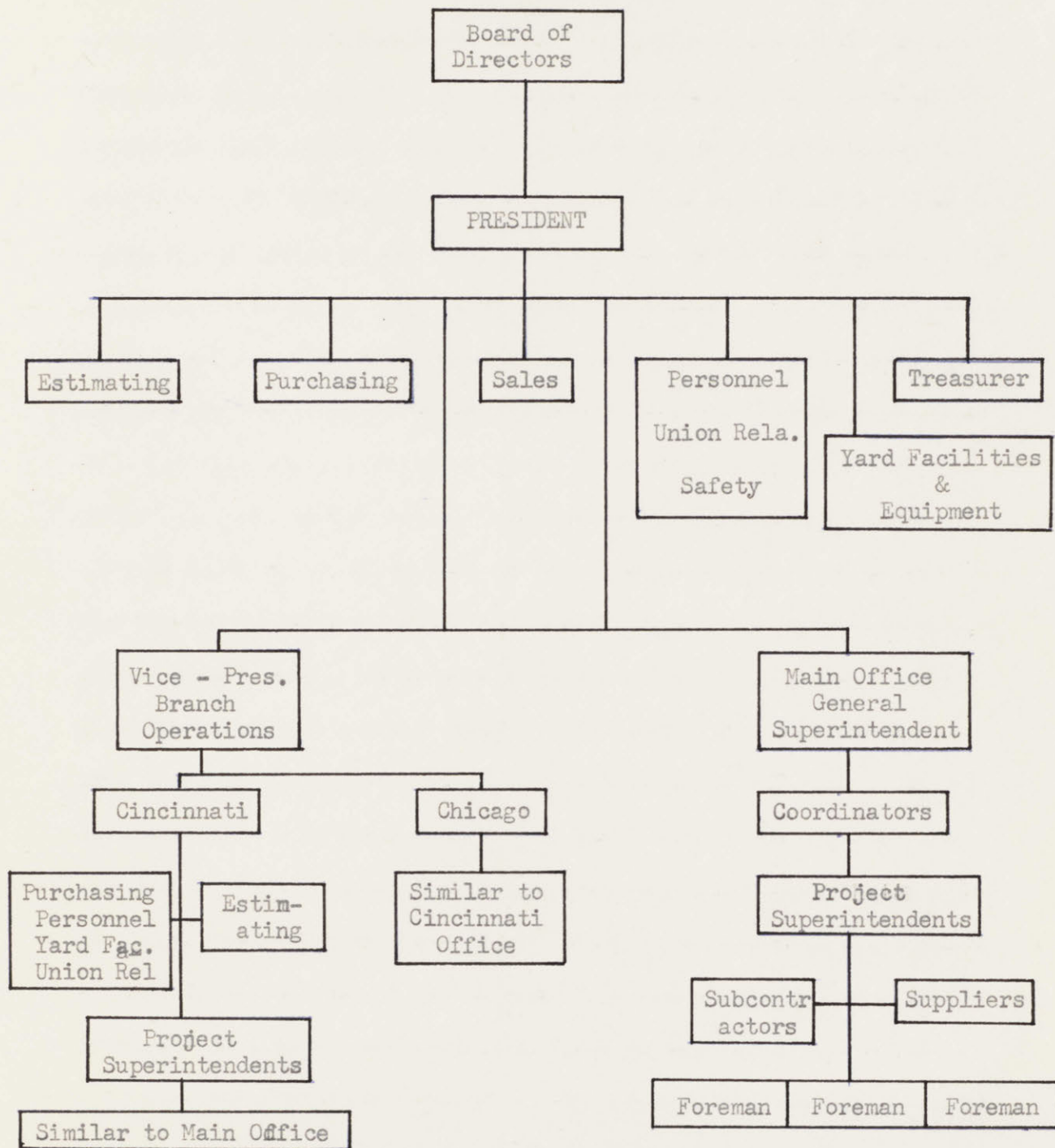
Now will begin our study of Darin & Armstrong after it has grown to the size that, for the purposes of this paper, will be

defined as a medium sized company, doing between 30 and 100 million dollars of construction in a year. The reason for this choice lies in the fact that when a company reaches this range of sales it must normally consider the establishment of substantial branch offices in new areas, in order that its sales volume might grow. In Architectural Forum's 1959 survey of general contractors this range included approximately twenty-five contractors.¹ As an aid to our study please refer to Figure 6 which shows the present organization of our model company which is now performing \$60 million of work a year.

The chief executive's relationships with the outside factors are now somewhat different. In the case of his relation with the owner, he is probably just as much a factor in the obtaining of jobs. During the interviews conducted, the chief executives with only one exception stated that their primary job was customer relations and sales. They felt that most construction projects represented such large investments on the part of the owner, that the owner must have a feeling of confidence in his contractor; and that only through the president's personal attention to the project could this confidence be generated. The one change in the relationship was in the fact that the president was forced by a lack of available time to concentrate his attention on the larger accounts, whereas during Darin & Armstrong's formative years he was close to all jobs.

1. "The 100 Biggest Contractors", Architectural Forum, (November 1959).

Figure 6



His relationships with the other external factors, however, have more or less devolved onto his subordinates. The company's relationships with architects are to a great extent handled by Sales, the Chief Estimator or the General Field Superintendent. Relations with the specialized sub-contractors and suppliers have been relegated to the estimators or the superintendents. The exception to this general rule, occurs when there is a serious difficulty concerning a particular sub-contractor or supplier. Then the influence of the president with these outside factors is called into play.

The chief executive's relations with union officials has also been drastically changed. Whereas many company presidents at one time also held membership cards in unions (generally the carpenters or the brickmasons), and more or less dealt with the union personally, now they increasingly rely on their line and/or staff personnel to handle union problems. Only when there is the threat of a contract or jurisdictional dispute strike will Darin & Armstrong's president interject himself into the situation. Thus, it is that although the chief executive has allowed his subordinates to take over some of his external relationships, he still requires that all items of importance be cleared with him. In this way he relieves himself of some of his work load while still maintaining control.

It might have occurred to the reader that up to this point no mention has been made concerning the relationship between the president and the Board of Directors. The reason for this lies in the fact that although Darin & Armstrong is a corporation, the Board

is generally appointed by the chief executive, who is also the majority common stockholder. Thus in both the newborn and medium sized company, the Board is a mere formality and does not perform any duties other than those required by law.

In looking at the apparent internal relations of the president to his subordinates, the organizational chart appears to be different. However, we will find that the company is still fairly well controlled by the president. In the case of our model the estimating department is still functioning as independently as it originally did, although the Chief Estimator reflects the example of his superior by maintaining a rigid control of all of the expanded functions under his authority. The Yard Facilities and Equipment along with the Purchasing, Treasurer and Personnel Departments still report direct to the chief executive. One of the new departments that has been added is that of Sales. This function has been added because of a realization that the preliminary contacts with new owners, etc. could just as easily be made by the president's subordinate, with the president stepping into the picture at the most propitious time.

As is evident from the organization chart, the chief executive did recognize the fact that with the increasing scope of the business, he could not personally perform all of the functions that he had previously. The most striking need for help appeared in the field supervision department. Previously, all of the project superintendents were in almost daily contact with the president to

receive his orders. It soon became evident that unless he wanted to give each superintendent authority, the position of General Superintendent had to be created. A general superintendent was appointed. Even though the owner-manager recognized the need to delegate, he was not able to do it to any great degree. He insisted that his suggestions, his instructions and his way of doing things be adopted by the new department head. However, the new department head also emulated his superior in keeping a very tight control of his field superintendents. As the company continued to expand, the work load of the general superintendent began to increase. To obtain some relief from this tremendous load, both the general superintendent and the president recognized the fact that either they would have to yield some authority through the general superintendent to the project superintendent or some formalized means of control would have to be instigated. A new means of control was decided upon.

The control system made use of two new organizational functions. The first of these was the coordinator. His duty can be summed up in a description of him as an assistant general superintendent. The second function that was instituted was a cost control system. Whereas the president and the general superintendent had previously used a system of job visits and personal contact as a means of judging the competence and performance of project superintendents, now detailed cost reports were prepared. The cost reports are prepared on the job site, with copies being sent to all superiors up to and including the president. By this means the chief executive maintains some control of his organization. (An ever

increasing problem for the larger contractor.)

The following excerpt from Professor Paul A. Holden's writings very aptly illustrates the causes and effects of the above changes in our model's organization chart.

"Chief executives themselves are generally aware of many problems of coordination and control which constantly beset them. However, experience has shown that many times expansion of management organizations are the result of immediate necessity, and accordingly the organization planning goes no further than to solve the problem currently at hand. The allocation of important functions on such a basis can only result, sooner or later, in a management organization which although it may be successful in attaining immediate results, will speedily become so cumbersome and lethargic as to lose much of its effectiveness." ¹

In addition to being subjected to more and more formalized reports, we find that our president has also developed a rather serious personnel problem. Present members of management may have been originally hired primarily because they were good at carrying out the president's ideas. Now, they may expect promotion to higher managerial positions, because of long service and seniority, even though they are not qualified for them in the chief executive's eyes. In addition the members of management who do recognize their lack of managerial know-how, will attempt to short-cut any attempts to replace them by failing to develop their immediate subordinates, which in the long run is extremely disadvantageous to the company.

As was indicated on the organizational chart, the company's area of operations has started to grow. First, the opportunity was

1. Paul Holden, L. S. Fish, and Hubert L. Smith, Top Management Organization and Control, (Stanford: Stanford University Press, 1949).

presented of doing a favor for an old customer by constructing an individual facility away from the company's normal area of operation. This situation of following the customer and servicing his needs as he branched out, away from his original territory, became the source of more and more sales volume. An enhanced reputation made short term loans more readily available from banks, and the company president was more confident of profit when dealing with an old customer. The local competition in the new community was generally at a disadvantage because the old customer was more cognizant of our model company's reputation which they had recognized for years.

Thus, the company has developed some valuable experience in operating in these new areas. Not wishing to waste this valuable experience and also wishing to remove the continual need for travel between the main office and the individual project sites, it was decided to set up two new offices. The first was established in Chicago, Illinois and the second in Cincinnati, Ohio. Again referring to the chart, it is evident that all branch office decisions are made by the vice-president whose desk remains in Detroit. Thus it again becomes apparent that the president's example is reflected right down the line. All control is in the central office, and all authority is centered in the chief executive officer.

Conclusion

We have reviewed the background of the construction industry and of the general contractor. We have also looked at the future of the general contractor and studied the way in which he

developed his organizational structure. There was a purpose in taking these two chapters of the thesis and devoting it to this study. The general contractors that were interviewed, including the model company, felt that the general construction industry would continue to expand with the nation. Moreover, the interviewer was given the impression that these general contractors believed that they would be able to capture a greater share of the sales volume, at the expense of other contractors. This was especially evidenced by their referral to their expanding branch operations. One of their major problems involves their organizational structure. The study of this organizational structure will be the problem investigated by this thesis. The next chapter will outline the problem in general and detail the specific areas which are of greatest concern to the companies interviewed.

CHAPTER IV

THE COMPANIES INTERVIEWED AND THEIR PROBLEM

The previous chapter mentioned the results of certain interviews that were conducted in connection with this thesis. Before we discuss some of the information derived from the answers supplied during these interviews, it might be of interest to the reader to see some of the pertinent data concerning the operations of the general contractors interviewed. The chief executive officer (generally the president, except for the executive vice-president in one case) was the person interviewed in each of the following companies: (Their sales ranking and sales mix have been obtained from Architectural Forum.¹⁾)

Facts of the Companies Interviewed:

George A. Fuller: Number 1, with sales in 1958 of \$135,900,000 composed primarily of industrial and commercial construction. They have seven branch offices spread from coast to coast, plus their main office in New York City.

Turner Construction Company: Number 2, with sales in 1958 of \$130 million spread fairly evenly between industrial and commercial facilities. Other than their main offices in New York City the company maintains three branch offices in the northeast and middle-western states.

1. "The 100 Biggest Contractors", Architectural Forum, (November 1959).

Daniel Construction Company: Number 6, with 1958 sales of \$59.5 million concentrated in the construction of industrial facilities. This company maintains four southeastern branch offices plus its executive offices in Greenville, South Carolina.

Darin & Armstrong, Inc.: Number 7, with 1958 sales of \$59.5 million, again heavily in the industrial phase of construction activity. With main offices in Detroit, the company also has two branches located in the middle western states.

Gilbane Building Company: Number 11, with sales in 1958 of \$43.4 million evenly distributed among the industrial, commercial and miscellaneous categories. Besides its main office in Providence, Rhode Island, this company as yet has no branch offices although it maintains project offices at its operations throughout the eastern, southern and midwestern states.

Further knowledge of these companies, their organizational relationships, etc. will be discussed during the remainder of the paper as such data becomes pertinent to the study. For now, the information just provided will allow a discussion of the aims or goals of these companies over the next ten year period.

In Chapter II the future growth of the general construction factor of the industry was discussed. During the interviews with the chief executive officers this same degree of optimism was reflected.

However, these top men were willing to discuss the specific nature of their goals over the next ten years only in vague terms. Their reluctance can certainly be attributed to the fact that their interviewer was the representative of one of their competitors. The fact remains that these companies are establishing new branch offices; and they are striving to continually increase their annual sales. Combining these facts with the author's personal knowledge of the model company's ten year goals, it would not be too far amiss to state that the dream goal of these companies is to be able to operate on a nation-wide basis.

The General Contractor's Ten Year Objective

All of the general contractors that were interviewed are capable of constructing a single project anywhere in the country. However, there are not now any contractors who are capable of operating in all of the major cities of the United States with the same effectiveness that they exercise when operating in their home city or territory. The Fuller Company is the only one that is even fairly well started along this route, with the other companies occupying various positions in the developmental stages. To be able to operate in this manner will be assumed to be the ten year goal of the companies being discussed. Construction activity on this scale will probably involve an annual sales figure of at least \$500 million per contractor. Though this annual sales figure appears extraordinarily large, in 1970 it would still only represent two percent of the billings of the general construction sector of the industry. So that, if anything the \$500 million sales figure is on the low side.

With this ten year goal in mind the next item of interest becomes, what must be done in order that the company will be capable of operating efficiently in the new realm of sales volume. It is probably evident to the reader that the creation of a nation-wide construction organization will require a great deal of prior planning. This planning will have to deal with yearly sales objectives, financing for the expansion, expanding union relations, obtaining of new customers, the possibility of mergers, etc., and will have to be subjected to continual reappraisal during the growth period, especially. The thesis cannot delve deeper into these important problems, but instead will concentrate its attention on what is considered the central problem in the growth of the construction organization. In Chapter III, the internal, as well as the external relations, of the construction company were discussed. As previously indicated, the chief executives that were interviewed felt that these present internal relationships represent the core of this major problem that must be solved during this period of expansion. This particular problem has been fairly well stated by Peter Drucker in his Practice of Management, when he said,

"The final function of management is to manage workers and work. Work has to be performed; and the resource to perform it with is workers - ranging from totally unskilled to artists, from wheelbarrow pushers to executive vice-presidents. This implies organization of the work so as to make it most suitable for human beings, and organization of people so as to make them work most productively and effectively." ¹

1. Peter Drucker, The Practice of Management, (New York: Harper & Bros., 1954) p.14.

This problem of getting people to work most productively and most effectively is what concerns these chief executives, because without the proper organizational relationships, their plans will be worth nothing.

The Problems of Growth

Therefore, the next four chapters will be devoted to different phases of the organizational problem. The first area to be considered will be the types of organizational structure that are available for use by a contractor whose operations are becoming increasingly geographically decentralized. In the two following chapters we will look at two areas of organizational relationships that were of more than casual interest to those interviewed. Chapter VI will be devoted to the relationship of the chief executive (the president, generally) and his immediate subordinates in the nation-wide company. Chapter VII will then investigate relationship between the headquarter's office staff and line officers, and the officers of the branch and/or project offices. These two chapters are of present importance to the officers interviewed because most of them are now experiencing difficulty in these two areas. However, in continuing the interviews, a fourth area of difficulty emerged. That problem will be developed in Chapter VIII when the problem of recruiting, training and holding the managers of this new organization will be looked into.

As each of the next four chapters are developed, the conclusions reached concerning the problem discussed in each chapter will be fitted into what might be termed the general principles for

the development of the ideal organizational structure. With these principles established the organizational relationship of a nationwide contractor can be derived. These principles will admittedly be somewhat idealistic. This fact might be considered a detriment by some persons. However, the writer feels that this is the proper approach. In this way there is always an ideal pattern in mind to which the company would like to conform, even if conformity is not immediately practicable because of human considerations. Even though the ideal structure or pattern is not immediately adopted, whenever the non-conforming personality drops out of the picture, the entire organizational structure does not have to be redone. Thus, with an ideal structure always available, only the affected area must be changed when individuals are changed. Now, with an understanding of the purpose of the thesis and the problems to be discussed in the remainder of the paper, the investigation of the various types of organizational structure available can proceed.

CHAPTER V

TYPES OF ORGANIZATIONAL STRUCTURE

During their original organization most company presidents are not concerned with picking the structure or pattern of their organizational relationships. The companies that were interviewed are not an exception to this. In fact, many of the men that were interviewed were not acquainted or overly concerned about the various types of organizational patterns that are available to them during their expansion years. Their main concern is centered on altering the original pattern in order to ease some of the strains that have been developing due to the increase in sales volume and sales area. More emphasis should be applied to the need for the selection of the proper pattern for our ideal company. Therefore, this chapter will define three patterns of organizational relationships that are available to geographically decentralized industries. The chapter will attempt to evaluate the comparative advantages and disadvantages of the three forms in the light of the information derived from the interviews. Thus, by combining the practical information of those interviewed with the theoretical knowledge available in various readings, the conclusions of the chapter may be adopted for our ideal construction company.

Management by Product Division

This first type of administrative pattern occurs when the departments or divisions are determined so as to include the sale of

certain types of products only, with each division handling the sale of a different group of products. This is often found where a company makes a wide range of products with differing sales or production characteristics. Examples of this type are Johnson and Johnson or duPont.¹ This type of administrative pattern is also characteristic of companies that produce several lines of similar products which have either high volume or high value. An example of this type is Ford Motor Company or General Motors Corporation.

In the first instance, with the company making a wide diversity of products, the headquarters staff is generally small on the grounds that over-all direction or coordination by headquarter's officers could contribute little in solving the problems of widely differing product lines. The contrast between this and the need for central office coordination in a construction firm whose product is similar is obvious. However, the difference between the construction company and the second type of product oriented firm is not so apparent.

The second type of management by product division is what Peter Drucker refers to as federal decentralization.² In this case at the divisional level the companies are frequently organized much like independent units, and are in competition with each other to a certain extent. Although there is a varying degree of coordination

1. George A. Smith, Managing Geographically Decentralized Companies, (Cambridge: Riverside Press, 1958), pp.29-33.

2. Drucker, op.cit., pp.205.

exercised by the central office, it primarily consists of financial control. Thus it will be seen that although this second variation of management by product division approaches some of the characteristic needs of a construction firm, other patterns or organizational structure are more applicable.

Management by Function

As described by George Smith, the management by function type of company may have several different geographically dispersed manufacturing plants, sales offices, purchasing offices, etc., with some of the offices or plants at the same location.¹ Nevertheless, the local factory managers report directly to the general manufacturing officer at the main office, the local sales manager reports directly to the central office sales manager, and the same situation applies to each of the other managers of the various functions. They each report to a central officer. Smith cites Lipton Tea Company and Standard Oil Company (Ohio) as examples of this type. Some of the interviewed companies now have this type of organizational structure.

Darin & Armstrong, Inc. and the Gilbane Building Company are construction industry examples of this type of pattern. Each of the branches are responsible to a headquarters officer for overall performance. In addition, however, each of the separate branch office functions also report to their corresponding officer at the central office. Thus the sales officer at the branch reports to the head

1. Smith, op.cit., pp.25-33.

sales officer at the main office. The same applies to the branch office purchasing agent, estimator, etc.

Companies that are managed by functions tend to have relatively simple organizational structures, and usually have only three levels of management: the chief executive, the central office functional officer and the local office operating head. This very simplicity, however, contributes to one of its disadvantages. Except for the chief executive who must coordinate the various functions, the other officers, both central and branch, develop a very narrow knowledge and competence. When dealing with a problem in their own domain they exercise competent knowledge. However, this competence is not complemented by adequate knowledge of the effect of their decision on the other departments. Thus though their particular department may show a good performance, the overall performance of the construction company shows the effect of this uncoordinated action. In addition, the narrowness of the officer's experience proves detrimental to the firm when he is promoted to a position which must coordinate the actions of departments other than his. The simplicity of the structure is of considerable advantage when the chief executive desires to keep all of the authority vested in his position. During the company's initial growth there is advantage in this simplicity. However, once the company outgrows the president's ability to coordinate all functions, the advantage becomes a serious disadvantage. We will further discuss the limitations imposed on a company by all authority being exercised by one man in the next chapter.

Management by Geographical Divisions

Although Management by Function is applicable when a construction company is relatively small, this form of management must be changed upon its growth, because of the inability of the one-man to properly discharge his duty. Management by geographical divisions is a hybrid of the types of management previously discussed. As described in Managing Geographically Decentralized Companies, all divisions or branches make and sell essentially the same products.¹ These companies typically have a branch manager for each division or branch who supervises and coordinates the activities of the local functional officers in accord with general company policies.

Daniel Construction Company and the Turner Construction Company are examples of construction companies that have started along this avenue of approach. Both of the men who were interviewed stated that in the future these branch offices will operate more and more like independent companies. They feel that the functional departments at the branch office will then have to be entirely under the control of the local branch manager. Their principal reason for this being that with the continued growth of the business within the branch area of operations, the weight of decision making on the headquarter's officers would become unbearable unless the local branch manager could be allowed to operate within the defined limits of general policies set by the headquarters offices. The headquarter's officials would

1. Ibid., pp.27-32.

then become coordinators of the branch operations and originators and implementors of policies. The serious disadvantage of management by decentralized divisions is generally related to the fact that the division of authority between the headquarter's and branch officers is hard to maintain, even with the most theoretically perfect design. Thus, it can happen that a great deal of valuable time is consumed in trying to get people to work together harmoniously. Although it is accompanied by possible serious difficulties, management by decentralized divisions is the organizational structure upon which our ideal company's organizational relationships will be based.

After having reviewed the three possible types of organizational structure and having picked the most likely, the next chapter will continue our investigation. As mentioned in the previous chapter, our next chapter is concerned with the relationship of the chief executive (or president) and his immediate subordinates in the nation-wide construction company.

CHAPTER VI

ONE-MAN vs. DELEGATED DECISION MAKING

As was referred to in one of the previous chapters, the primary reason for the death or decline of a construction company has been the occasion of the founder leaving the company by reason of his death or retirement. Up and until this point we have been talking about what changes will have to be made in the organizational relationships in order that the company might expand into a nation-wide operation. However, if our efforts to reach this objective can be aborted merely by the death or retirement of the chief executive, it is important that an investigation of this man's position as the chief executive officer be made. In particular the relationship between the president, or chief executive officer, and his immediate subordinates in this geographically decentralized firm will be studied. The chapter will consist of a study of the two possible types of characters assumed by the chief executives. For the purposes of this paper, the two types of characteristics will be referred to as those of one-man decision making and of delegated decision making.

One-Man and Delegated Decision Making

The two terms one-man rule and delegation have many connotations, but for the purposes of this paper, we will use the following definitions: one-man rule occurs in an organization when the chief executive retains for himself all authority, power and responsibilities. Although he may appear to be very personable, he

can generally be termed autocratic in his relations with his subordinates. His subordinates become dependent upon him for all decisions, and he soon finds that he is the indispensable key to all company operations. The second definition is that for delegation. The term delegation in this paper refers to the president's distribution of authorities, powers and responsibilities to his subordinates. The degree of one-man control or delegation is a relative matter.

The advantages and disadvantages of the two different types of executive rule have been thoroughly reviewed by many different authors using different approaches and examples. In addition, the interviews that were conducted in preparation for the writing of this thesis were centered around the relative advantages of the two types of rule. This chapter is indebted to the various authors cited in the bibliography and the executives interviewed for many of the opinions voiced. If Chapter III is recalled and compared to our definition of one-man control, it will be immediately evident that at least our model firm, Darin & Armstrong, Inc. is an example of one-man decision making. By means of a series of questions during the interviews, it was established that the other subject construction firms are also oriented in the direction of one-man decision making. In discussing the future courses of their firms, however, those interviewed indicated that their companies will make an ever increasing use of the principles of delegation.

Advantages of One-Man Decision Making

There must be a leader at the head of the construction company, or any company for that matter. The leader is the person in the company who knows what the company's primary objective is and then organizes his firm to attain that objective. (This of course also would apply to the leader at the head of any department, division or branch.) However, the leader is human and this fact in itself puts two limitations upon him. First, his body and mind can only be of use to the firm for so many years, dependent on when he leaves the company; and secondly, his body and mind will only allow him to perform so many actions in any time unit, be it day, hour, month or year.

In a small company the founder provides the leadership. As long as the firm remains comparatively small, the leader or chief executive does not reach the limits imposed by his body and mind. The limitation of death or retirement is absent because of the relative youth of the founder. The men interviewed felt that the limitation of time on their daily output was not serious until the firm approached the volume of a medium sized business. One of the reasons for this is the fact that the founders were generally willing to devote all of their waking hours to the firm. The limitations of time appeared when the firm approached medium size because it was at this point that separate branch offices were created. Up until this point the smallness of the firm did not impose the limitation of time upon the president. Without this limitation his mind was able to receive and to digest all of his subordinates' information as it became available, and to render decisions without delay.

The centralized authority of the one-man rule allows, in theory, for more effective planning and coordination; and because all decisions are made by him, the president has a much broader and complete picture of all of the company's operations. This overall picture would never be possible if his subordinates had decision making authority and responsibility. Most of the executives interviewed found that as they approached the limit of time on their actions they could extend their limit. This generally resulted from the use of cost control systems and additional layers of management, i.e. coordinators. Admittedly these methods reduced the clearness of their picture of their overall operations.

Disadvantages of One-Man Decision Making

Eventually, the human limitation of death, retirement or physical disability removes the services of the leader from the company. (There was a natural reluctance upon the part of those interviewed to discuss this point. However, the second generation of chief executives among the men interviewed were a little less reticent about their opinions.) When the leader who has made use of one-man rule leaves the firm, there is no leader to replace him within the firm. This serious disadvantage of one-man decision making is the result of the subordinates not being allowed to exercise the authority and responsibility that would have allowed them to develop their managerial capabilities. Most construction firms go out of business at this point, even if they have survived some of the other hardships that normally accompany the departure of the leader. In the case of

the companies interviewed a combination of events allowed sufficient time for a new leader to develop. Although this is the limitation that is most decisive in its effect, the limitations imposed by the body and mind's ability to perform only a certain amount of functions in a given working period also is serious.

One-man rule or decision making becomes a disadvantage when the organization grows to a larger size. The factual data, background, experience and ability required of the chief executive for complete, accurate decisions increases more rapidly than the size of the organization. The executive at the point of central authority has less and less personal knowledge of conditions at the point of operations. (This recalls the model company's situation when the need for a general superintendent became apparent to the company president.) The attempts to compensate for this lack of information is usually by means of more complicated procedures, formal reports (i.e. detailed cost reports), records, and communication devices that result in increasing overhead costs. In addition, interviewed construction executives admit to a feeling that they have become less effective because of their increasing reliance upon the above mentioned devices. The time that is required for the principal executive to make specific decisions increases. It becomes more and more necessary to base decisions on average general conditions throughout the organization and to apply them to local situations in operating departments. The president may be forced into using dictatorial manners because of his increasing inability to maintain close personal relationships with his subordinates. The occurrence and implementation

of new ideas decreases because of the greater amount of time that the chief executive must devote to routine decision making. Because of the inability of the department heads to exercise judgment within their own departments, the organizational structure becomes unstable. Moreover, the firm's inability to develop new managers or leaders is one of its biggest disadvantages. This results because subordinate executives do not have adequate opportunity to make the decisions and mistakes that are an absolute necessity to managerial growth.

This last sub-chapter has painted a black picture of the disadvantages of one-man rule. During the initial life of the new company, one-man decision making is beneficial to the growth of the company. Nevertheless, one-man decision making will naturally lead to the limitations and disadvantages imposed by the physical limits of the leader's body and mind.

Advantages of Delegated Decision Making

As was previously pointed out many of the interviewed executives felt that delegation was the answer to their problems caused by expansion. Further, they felt that ten years from now, the then president of their respective companies would make greater use of the principles of delegation of authority. The general run of today's presidents, however, are only willing to move slightly toward delegation of decision making, so that in most companies the company's growth rate is still limited by the physical limitations of the leader. If we are to plan for a national contractor, the importance of the chief executive's physical limitations must be minimized or eliminated. Many of the disadvantages of one-man

decision making cited above are, conversely, the advantages of delegation. The delegation to his subordinates of authority and responsibility for the actions of their departments, will allow these advantages to work for the benefit of the company. If the chief executive will rely on the use of the principles of delegation, he will be better able to carry out the principal duties of the leader, the setting of company objectives and the organizing of the company's attributes to attain the objectives. It is sometimes jokingly said that the true executive has his work so well organized that he can relax with his feet up on the desk and look out the window. This availability of time is highly valued by chief executives; and if the chief executive has properly delegated to his subordinates all the decision making authority that can be competently handled by them, he will have time to sit and reflect. Many executives feel that it is detrimental to the business if time cannot be devoted to the re-evaluation of the company's future, its objectives and its organization. The other major advantages of delegation lie in its elimination of the bottleneck created by one-man decision making and the creation of the opportunity for the development of new managers within the organization. Thus, the limitations imposed on the company's growth by the existence of the chief executive's physical limitations can be removed through the use of delegation of decision making.

Disadvantages of Delegated Decision Making

It must be recognized that few chief executives are now willing to pay the expenses that they fear will be involved if they

give their subordinates more authority. The fear centers, primarily, in their belief that the subordinate is not capable of, or willing to do as competent a job as he, the president, can do. This fear is based on two factors: (1) that the subordinate has had insufficient experience in performing the function under consideration, and (2) that the subordinate cannot experience the same financial interest in the performance of the corporation. If the chief executive can realize the advantages of delegated decision making, both for the company and himself, their comparative worth will overshadow the possible disadvantages that may occur. To minimize these possible disadvantages, the chief executive may adopt the following procedures. The first disadvantage will succumb to the proper training of the subordinate by the superior. It may even be that because of his new approach to the function, the subordinate may develop a more advantageous way of operating. To minimize the second disadvantage, the superior may incorporate formal and informal controls through which he may maintain the subordinate's interest in the financial performance of the corporation.

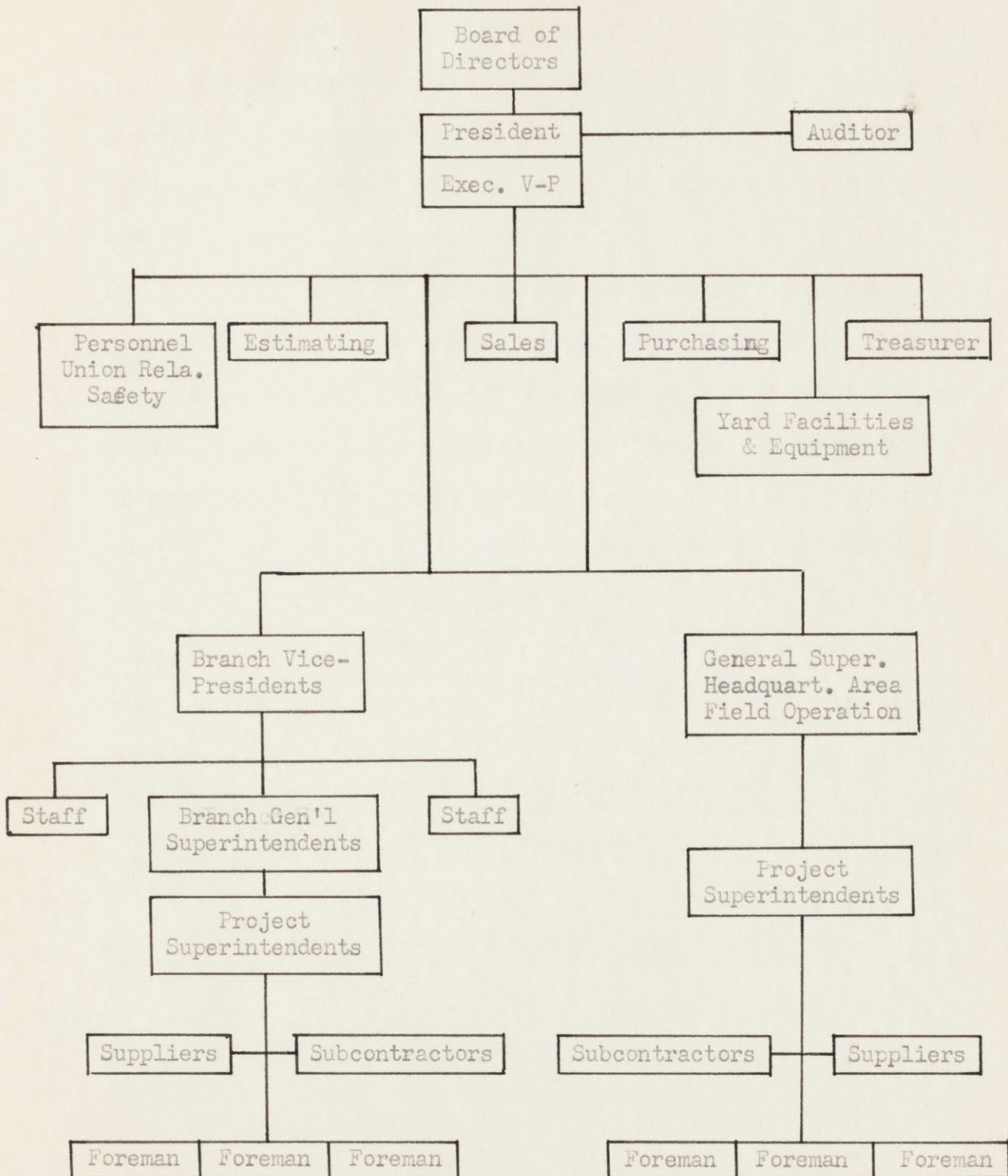
Controls or Standards

To satisfy the chief executive's need to know the competence with which his subordinates are exercising their authority and responsibility, it is necessary for him to develop what is commonly referred to as a control system. As part of mapping out his own role in the company, he must decide which people he will himself watch and which ones he will assign to others. People that he will

watch personally will include the members of his headquarters functional officer's group and the executive vice-president (see Figure 7). In order to judge properly the competence of these men, he will have to also have a limited feel for the relative competence of the next two layers of management, the branch and project managers. However, before he can judge the relative competence of his subordinates, he must establish the ground rules. Objectives for both the company, the headquarter's functions and the branches must be spelled out. Written specifications of the functions, responsibilities, relationships, and limits of authority must be provided for each department or branch. In addition the proper understanding of the written policy should be disseminated as widely as possible within the organization. As shown by the interviews, construction organizations do not believe in written policies because the executives have grown up with the policies. However, the executive who is new to the company needs written policy statements in order to be able to ascertain whether or not his actions are in accord with the objectives of the company.

Once the president has established the objectives, responsibilities, etc., he must then determine how he will measure whether or not his top management is meeting the standards set. His immediate subordinates will be judged almost entirely through the use of informal observations. This informal type of control is a question of advice, discussion and mutual respect built up through personal contact. In the case of the staff the use of a budget will be his only means of formal control. However, in the case of his

FIGURE 7



executive vice-president and the lower levels, he will probably rely on the formal profit and loss statement, in addition to his personal contacts. Especially during the company's expansion into a nation-wide contractor, the president will have to put a great deal of weight on whether or not his subordinates are using and developing the human resources of the company.

The reader will notice in Figure 7 that the position entitled Auditor has been added. This department or outside agency will not serve as an agency of cost control. Its purpose will be to ensure that all financial records of the company are honestly maintained throughout the system.

The Executive Vice-President

The executive vice-president's position has also been added. This has been done for two reasons. First, the present company's main problem concerns the development of the president's successor. With the branch office managers reporting directly to him the executive vice-president should obtain a great deal of training in general managing. The second reason lies in the possibility of overloading the president if the nation-wide branch managers reported directly to him. The possibility of even more of the president's duties being given to other executive vice-presidents has been suggested both in the interviews and in the reading material. However, this matter will have to be determined after more evidence can be gathered as to the presidential workload.

Ten Years Hence

The president of the nation-wide contractor, ten years hence, will have employed the principles of delegation to their utmost advantages. The degree of delegation will depend upon the president's personality. The chief executive officer and president will have many of the following characteristics.

He will possibly never have a completely clear picture of all of the company's job requirements, because of the decentralized nature of the business, but he will have an intimate knowledge of the company's top men. If he wants to minimize the inevitable conflicts of interest and the uncertainties of an organization of that size, he will have to be able to maintain the clear, original understanding of the individual responsibilities and relationships of each of the members of top management. His own organizational behavior will have to be consistent with his policies, since it is easy to commit or permit inconsistencies both on his part and on the part of the subordinates, unless he is constantly on guard against them.

Both vertical and horizontal communications will be a major problem among his officers and between him and them, because of the geographical distance that will separate many of them. He must be quick to grasp developments and understand people with whom he rarely comes in contact. Of course, his attitude towards the use of delegation must be continually impressed on the officers, so that his example will serve to develop similar convictions among them.

In order that he may evaluate the worth of each of the management positions, he must continually assess the value to the

company of the contributions made by each of the top management positions, including his own. In sum, the president must continually review the company objectives and organizational plan to see if they are sound, and if the plan is being run by capable people, is functioning as it should, and is adapting itself to change when necessary. If changes are necessary, he must be willing to carry them out.

The next ten years will also see changes in the functions of what we have termed the headquarters functional officers. Their mission will become the assisting, through advice, of the chief executive and the branch officers, the formulating of future objectives and policies; the bettering of operating methods and equipment; and the keeping track of valuable personnel. To quote from a book by George Smith, their characteristics will consist of,

"imagination and creative ability. They should be able to assess developments in their own particular fields and relate these to the needs and possibilities of their company. They should have patience and enthusiasm. (...) They should be willing and able to 'sell' their ideas, rather than 'insist' on their adoption. They should be willing to cooperate and able to understand other people's problems." ¹

Thus it is evident that in contrast with the present situation, the future chief executive and his subordinates will be more administratively inclined. Having established the principles of the relationship that should exist between the chief executive and his subordinates, our next source of interest will be the relationship that should exist between the headquarters and the branch or project offices.

1. Ibid., pp.87-88.

CHAPTER VII

CENTRALIZED vs. DECENTRALIZED CONTROL

While discussing Management by Geographically Decentralized Divisions in Chapter V, we briefly touched on the advantages and disadvantages of centralized versus decentralized control of the divisions or branches. In this chapter we would like to delve a little further into the generalities of centralized and decentralized control. As in Chapter VI, our source material will be many of the books listed in the bibliography along with answers supplied by the interviewed chief executive officers. The generalities of the questions will be discussed in the framework established when using an organizational structure similar to that developed for Management of Geographically Decentralized Divisions.

To establish a common understanding of the terms used, the following definitions will be adopted for use in this paper. Centralized control refers to the situation wherein all decisions of consequence are made by the headquarters officers. Conversely, the term decentralization is the delegation of authority so that decisions are made at the lowest possible level that decisions can intelligently be made. Peter Drucker's book, The Practice of Management, defines decentralization by quoting an excerpt from the management charter of the Lamp Division of General Electric, to the effect that, "all authority not expressly and in writing reserved

to higher management is granted to lower management".¹ The term decentralization implies the headquarters group will be weakened. This is far from the truth. Decentralization requires strong guidance from the headquarter's officers through the setting of clear, meaningful objectives with accompanying policies for the entire organization. These objectives must demand a high standard of conduct and performance throughout the company.

Centralized Control

There is a great deal of similarity between the arguments used both pro and con the use of centralized control, and those used pro and con the one-man decision making. However, the advantages cited in the previous chapter advocating the use of one-man control do not fit the case of centralized control. If each of the headquarter's officers were to make all decisions for his particular function throughout the firm, there would be no coordination whatsoever. In order to achieve this overall coordination, the president would have to resume his role of the one-man decision maker. We have discarded the use of one-man decision making in favor of delegated decision making. Therefore, centralized control would run contrary to our use of delegated decision making. In addition many of the disadvantages of one-man control are also associated with the use of centralized control.

1. Peter Drucker, The Practice of Management (New York: Harper and Brothers, 1954), p.141.

Decentralized Control

Before delving into the advantages and disadvantages of decentralized control, it is important that the attitude of the personnel involved be stressed. As in any other type of organizational relationship, it is important that the personnel involved are helped to develop the proper attitude toward the system employed. This is especially true when the principles of decentralization are used. For in this situation a great number of people from different levels of management are involved; and their attitude toward the system can prove either advantageous or disadvantageous. The attitude can only be determined through example shown by superiors, beginning with the president.

The reader must realize that many of the pros and cons of delegated decision making also apply to the current topic of the pros and cons of decentralization. A prime advantage of decentralization is the ability of the officer at the scene of the action to render immediate decisions, which are based not only on general company policies, but also on all of the facts concerning the situation. In addition the time and the abilities of the higher officers can be more advantageously used on more important assignments, and involved and expensive paper work by the headquarter's staff can be reduced. There is the possibility that this autonomy of decision making can lead to the disadvantages associated with a lack of uniformity of decisions and an inadequate utilization of specialist advice, unless the proper policies are originated and implemented. Another benefit cited is that it focuses the efforts of each manager on the results

of his particular branch or project, and makes it virtually impossible for the weak manager to hide the results of his operations.

Decentralization can mean the end of management by edict, if proper communications are maintained; and in addition will develop a greater degree of enthusiasm for attaining the company objectives because top management's decisions will be more thoroughly understood. However, we again return to the advantage that is associated with the ability of managerial talent to be nurtured under a policy of decentralization. With responsibility available for the training of future managers while they are comparatively young, any deficiencies in the potential manager that occur can be corrected; and if the man shows that he is not a likely candidate for top management his talents can be put to other uses. It is better to learn of a man's possibility at a young age rather than later, when he is put into a responsible position where his actions affect the company's future.

Though the advantages cited are attractive, there are also disadvantages that must be guarded against, or at least minimized. The disadvantages can be many or few, but there are some that are most common in the use of decentralization. Among these is that there may develop friction between the headquarter's group and the branch and project groups which will lead to a continual jockeying for power. In addition to this serious disadvantage there are those that were mentioned with the advantages listed above. Many of these disadvantages may be negated by the proper use of controls or standards.

Controls or Standards

Controls and Standards were also discussed in Chapter VI, and many of the observations made then apply now. Many of the statements made then concerning the president's control of his immediate subordinates also apply to the control of the branch managers and the project managers. As mentioned by Professor Davis in his book Fundamentals of Top Management, Henri Fayol's Industrial and General Administration, page 77, refers to,

"The control of an undertaking consists of seeing that everything is being carried out in accordance with the plan which has been adopted, the orders which have been given and the principles which have been laid down. Its object is to point out mistakes in order that they may be rectified and prevented from occurring again." ¹

Therefore, once the plan or objective has been agreed upon, it and the policies with which each officer will work within, in order to obtain the desired goal must be made known to all concerned. From that point on the purpose of control becomes the assurance that the performance is proceeding according to plan, is coordinated and will be subject to a minimum of losses due to interferences with the plan. In order to do these things the control system must be able to be understandable, assure corrective action when necessary with the trouble spot pinpointed, report deviations expeditiously and be both economical and flexible. With the proper control system established the officer's time is only consumed by the necessity of observing the deviations from the plan.

1. Ralph C. Davis, The Fundamentals of Top Management (New York: Harper & Brothers, 1951), p.157.

However, the control system consists of more than just the setting up of the formal standards. Once the superior has decided which subordinate he must personally supervise, a relationship must be established between he and his subordinates. The relationship should not consist primarily of financial or other formal controls which require the submittal of continual reports. The formal reports should be used only for items of necessity which the superior is unable to perceive through personal contact. Personal contact is important. Too elaborate a system of checks and balances will only damage the self-reliance and initiative of the managers, and lead to the establishment of a bureaucracy. Without personal conversations and job visits it is difficult for the executive to know his men, to sense their feelings, or to impress his views and attitudes on them. Just exactly what an executive learns from direct observation and personal contact is sometimes hard to explain. An acquaintanceship with the people involved, a realistic mental picture of the job involved, the reaction of people to suggestions, and the ease and informality of asking questions and giving information all add up to an understanding of situations that is impossible to obtain through written or second-hand reports. Besides this it develops confidence and the able executive can get things done much better if the subordinate wishes to aid him. In conclusion, the written or formal report plays a part in the control system, but a personal relationship should be the dominating method of exercising control. The relationship between the central officer and his subordinates in the

field, either at the branch or project office will have to revert to the more personal atmosphere that existed during the early days of the company's existence.

The Future

Ten years hence, the relations of the headquarters and branch offices will have to be based on the principles of decentralization. This will also apply to the relations between the branch offices and their respective project offices. The central office staff will not have authority to command compliance by the branch offices. Rather, they will have to fulfill their purpose by means of advising and training. Their services will be available to the branch officers for consultation, but they must rely on the mutual trust developed between them and the branch to obtain the acceptance of their advice. The branch office staffs will operate in the same relationship with the projects. There are some staff functions that will remain centralized. Among these will be those that require costly equipment or specialized high-cost skills, i.e. IBM type equipment, estimating and equipment facilities; or that can most profitably be performed at a central location, i.e. financial operations other than those of cost accounting and accounts payable. The relationship of the Executive Vice-President and the Branch Managers will be similar to that of the President and his subordinates except that the executive vice-president will be involved in more day-to-day planning.

We find that the branch and project managers will also have to change. These will be the men that carry out the orders of the

headquarter's officers in the same manner that they now do. However, there will be an important difference. The orders will be in the form of broad policies developed to achieve the company goals. No longer will the branch or project manager operate as a clerk. However, his new ability to operate on a much broader scale will also carry with it some requisites. He will still have to be willing to apply pressure to people and to accept and give advice and criticism, but he must also remain as unperturbed as possible by the confusions that sometimes result. The confusion may result from his having several advisors in addition to his direct boss. He will have to develop a much greater insight and the courage to depart from rules when the circumstances warrant departure, in addition to managing his subordinates by leading and coordinating them. This will be in sharp contrast to his present role of relaying orders from his boss, and running his branch or project office in accordance with the principles of one-man control. To develop this desired attitude will require constant training and appraisal of subordinates by each and every superior, but it must be done if the company's expansion is to be successful.

Now that we have looked into the subject of centralized versus decentralized control, we next will investigate the fourth problem area. The following chapter deals with the management problem of recruiting, training and holding the manager of the new organization.

CHAPTER VIII

RECRUITING TRAINING AND RETENTION OF MANAGERS

The previous sections of this thesis have concluded that the future construction company organization must depend on more than one manager. In fact the conclusions show the need for a great number of men who can exercise intelligent, individual managerial capabilities. The men who were interviewed readily stated that men with these capabilities are not now available in the firm. They will not come into being without a definite plan. The construction company that wants to expand its operations to a nation-wide scale must adopt the new organizational structure. The new structure calls for many more executives, and the training of the men that are presently employed as well as the men who will take their place must be done. The views of the companies interviewed will be interjected in the following discussion.

Recruiting

Once the company has agreed that the men must be obtained, the next question becomes what type of men are needed. Some of the firms believe in annual recruiting and others still rely on the response to their want ads in the local papers. However, the company with a plan must determine what qualities it wants in its recruits, and then go and get them. The likeliest source of material is the colleges. There have been many attempts to define the ideal requisites of top executives. Many of the same requisites for the new recruits can be classified as normal. It is not likely that a

person would knowingly hire a man who was not honest, technically capable for his first position, fairly intelligent, etc. In addition to the normal attributes, the recruit must enjoy working and be willing to undertake unpleasant duties. He must be trustworthy and willing to investigate both sides of a question. If the future executive has developed a broad intellectual outlook, it is to his credit, but he must have an understanding and appreciation of human relations. That these qualities will be found in varying degrees of development is evident. It will be the objective of the training program to further develop these desirable traits.

Training

Once the recruiting program has been implemented, the training program must be devised. Among the companies interviewed, the use of training programs varied from those that use none to those that make limited use of one. (The Perini Corporation of Framingham, Massachusetts, has instituted a formal training program for its future managers.¹ In the construction industry the program is considered a first.) As mentioned, the program should have as its objective the further development of the desirable managerial qualities. The program must convey a sense of its importance, and of the men's importance to the company. This should be achieved by the appointment of the executive vice-president as the official with the over-all responsibility for the men. During their first years of development, technical training will be of prime importance in the

1. "From Campus to Construction Super", Engineering News-Record, (November 7, 1957), pp.145-147.

program. This can most profitably be obtained through the trainee's assignment as a field project layout engineer. Then, with the basic knowledge of construction processes, methods and equipment firmly in hand, the training program may take on a more diversified attitude.

Many of those interviewed believed that the trainee should be shifted between departments and assigned to different positions within the departments. The departments should include estimating, sales, equipment and yard facilities, and of course the various types of field projects. In the field the training should take him from layout engineer to assistant field project superintendent. The shifting of the trainee about through different departments and positions will help to broaden his vision and values. The person who remains tied to one form of specialization too long, especially during his formative years, will develop a narrow sense of values and tend to lose sight of the overall company goals.

Up to this point the present company presidents will agree with the training program. This is best exemplified by the following remark that,

"Experience is almost a matter of faith - that translates into a wide-spread mystical feeling in most companies that the man at the top knows more than anybody. (...) He's got to be a construction stiff, finance man, designer, politician, and human relations expert. He's got to know more engineering than his engineers, more about costs than his accountants." 1

Most construction company presidents believe that the manager must have a great deal of technical knowledge and that managerial training is

1. "Off-Beat Men for Off-Beat Jobs", Business Week July 20, 1957, pp.172-173.

unnecessary. Among the companies interviewed, those that had branch offices have begun to recognize the need for more managerial skills. The formal training program should be designed to develop managerial as well as technical skills.

The attitude of the trainee's superior must also be developed along proper lines. The superior must be willing to take a chance on the subordinate. The trainee may make mistakes that are obvious to the superior, but only by making the decisions himself will the trainee develop confidence. The earlier in his career that the trainee is allowed to assume responsibility the more advantageous it is for both him and the company. Policies of delegation and decentralization are helpful in this respect. A young man can be given responsibility and authority as an assistant project superintendent. He will derive a great deal of help from this show of his superior's faith in him and from the actual possession of the responsibility and authority. If it becomes evident that he is not ready to receive responsibility, most projects are of such short duration that he may easily be relieved of his position when transferred. If the executive vice-president does not feel that the trainee will ever develop properly, the connection can be severed and neither party is hurt badly; whereas if the man's age is advanced before he is given responsibility, then fails, both he and the company can be hurt.

Retention of Managers

Recruiting and training is all to the benefit of the man and the company. However, if the man leaves the company, besides the

investment, the company loses part of its managerial reserves. A means must be devised and implemented so that the man feels that his future is tied to the future success of the company. In several of Professor Douglas MacGregor's lectures at M.I.T., he discussed motivation principles as applied to management. In summary, his work motivators can be put into two categories. If there are present within the company, (1) understandable company policies, (2) interpersonal relationships, (3) a superior with technical competence, (4) adequate salary and benefits, and (5) fair working conditions, then these conditions will have little effect on motivating the people to work or remain with the firm. However, if they are not present they will have a definite adverse effect on the people. Secondly, if there is present (6) a job with a challenging nature, (7) responsibility, and (8) the possibility of, and occasional advancement, then these conditions will have a great deal of lasting positive effect on the working attitude of the person involved and his desire to remain with the firm. If these three conditions are not present, the desire to work or remain with the firm will be negatively effected. In addition he cites two conditions, (9) recognition of accomplishment, and (10) a feeling of achievement which also have the same positive and negative effects as for the first three, except that the effects are only short-lived. Delegation and decentralization are the forms of business that provide the three conditions just mentioned that have a lasting positive effect on the desire to work and remain with the firm: (6) a challenging job, (7) responsibility and (8) possible advancement, in the greatest degree. The other conditions of lesser

import mentioned above are available in any of the organizational structures.

Thus, with the implementation of well thought out programs for the recruitment, training and retention of managerial personnel, the future of the nation-wide general contractor will be more certain of success.

CHAPTER IX

CONCLUSION

In the preceding chapters a number of conclusions have been put forward concerning the effect of growth upon the organizational relationships of a general construction company. The study's main concern was with the growth of a general building contractor operating in a single location into a contractor with the capability of operating in any of the major cities of the United States with the same effectiveness with which he now operates locally. The following paragraphs will be devoted to the resume of the problem and conclusions reached in different areas of the overall problem.

Conclusions

The problem area investigated in Chapter V was related to the type of organizational structures that are available to a geographically decentralized construction company. The pros and cons of three different types were put forward, (1) Management by Product, (2) Management by Function, and (3) Management by Geographical Divisions. In drawing our conclusions, the third type of structure was adopted for the principal reason that with the continual increase of sales at the local branch level, the branch manager should be invested with as much control of local operations as possible.

Our investigation next looked into the problem of one-man versus delegated decision making. This chapter is probably the most

important of the thesis because the arguments for and against the two varieties of decision making are also of great importance to the other problem areas which were looked at. With the conclusion that the medium sized construction firm is in the process of outgrowing the physical limitations of the chief executive officer, this chapter ended upon the belief that the president of a nation-wide contractor must make use of the principles of delegated decision making.

Following this chapter, the advantages and disadvantages of both the principles of centralized and decentralized control were laid before the reader. There were two primary reasons for adopting decentralized control for our ideal organizational structure. First, the officer at the scene of action was considered more able to make competent decisions because of his intimate knowledge of the details if he has well defined company policies to guide him. Secondly, it was concluded that decentralization developed an atmosphere that was the most conducive to the development of managers.

Our last center of interest concerned the recruiting, training and retention of the company's managers. The importance of developing an over-all plan to solve this problem was outlined. Especial emphasis was put on the development of the proper attitude of the superior toward his subordinate. The third area of interest within the chapter lay in the retention of the men with managerial capabilities. No firm conclusion can be drawn on this subject, however, based on lectures and some interview material, other motivating items being adequately taken care of, the items that are of most importance to keeping the personnel are that the person feels

that he has (1) a challenging job, (2) responsibility and (3) a good chance for future advancement. Delegation and decentralization are the forms of business that provide these three ingredients in the greatest measure.

Future Thesis Possibilities

Throughout the writing of the thesis various side issues have intrigued the writer. There are two of these issues which would serve as central themes for future theses. First, as was acknowledged, there are other problems that will have to be solved in order that the medium sized general contractor may expand into a national position. Among these problems are those of finance, including the question of whether or not the family may remain as controlling interest. Then, too, there may be union problems. Some means must be adopted for obtaining new customers, suppliers and sub-contractors, etc. Many of these problems may be solved, or at least minimized through the use of mergers. Thus, investigating the other problems related to the growth of the general contractor may furnish material for more than one thesis.

Using some of the conclusions reached in this thesis, a new thesis might be designed around the application of some of the conclusions to the structure of a construction company. This thesis would have to be a case study. In conducting the survey of the company, the writer might well include analysis of decisions, activities and relations. This method of determining the proper

organizational relations is described in Peter Drucker's, The Practice of Management.¹

1. Peter F. Drucker, The Practice of Management (New York: Harper and Brothers, 1954), pp.195-196.

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