July 28, 1947

To the Committee on Graduate Study:

I am submitting to you a thesis written by Eugene Puett entitled "An Analysis of Organization Charts." I recommend that it be accepted for nine quarter hours credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Business Education.

B. R. Hayner
Major Professor

We have read this thesis
and recommend its acceptance:

Edo ille

G K Parker

Accepted for the Committee

Dean of the Graduate School

AN ANALYSIS OF ORGANIZATION CHARTS

A THESIS

Submitted to
The Committee on Graduate Study
of
The University of Tennessee
in
Partial Fulfillment of the Requirements
for the degree of
Master of Science

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by

Eugene Puett

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CHAPTER I

THE PROBLEM

The graphical representations of relationships of authority, responsibility, and the division of labor in society and business are relatively new; nevertheless, these relationships have always existed in some form. The primitive man established the family group and tribe not so much through purpose as through instinct, necessity, and chance. The physically stronger sex of the parents became head of the family, and the strongest male of the tribe became chief. These relationships parallel to some degree those of modern society, although the manner of selecting leaders has been modified.

Donaldson gives his interpretation of the earliest form of business organization when he considers the family group as a sole proprietorship:[1]

> . . . . The individual proprietorship probably grew out of the family group. Although the early family lacked the business motive, it represented an organization which effectively combined the labor of the group, and administered the group property. This family group closely resembled a partnership, but as everything else was subordinated to the control of the father, it was more like an individual proprietorship.

The first form of business organization as such was probably the trader who was the sole proprietor of his enterprise. When he obtained assistants, there was established the relationship of master and servant. If his business prospered, and he hired more and more assistants, there

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[1] Elvin F. Donaldson, Business Organization and Procedure (New York: McGraw-Hill Book Company, Inc., 1938), p. 25.

was the necessity of "delegating authority" in order to control these assistants. There became too many assistants for the trader to supervise directly.

However, the sole proprietor had another recourse. He could have agreed to have someone share in the ownership and profits of the enterprise and at the same time be relieved of some of the work and responsibility. This is probably what he did, for it is evident that man formed groups early and realized the advantages of concerted action. When this partnership was formed, the problems that confront business organizations today arose. These concerned specialization or division of labor; authority and delegation of authority and responsibility; and the over-lapping or duplication of work.

It is pure coincidence that two persons should arrive at identical decisions. In a partnership, one partner will probably have a greater part in making decisions, while another will have a greater part in performing the work. Some partnerships are formed in which one partner furnishes the capital and the other his services. It is certain that both partners would not share equally in all activities. Brown says:[2]

> . . . . The concerted endeavors which are characteristic of our social existence go far beyond the mere duplication of effort. The earmark of concerted endeavor in general is a differential in the roles enacted by the participants therein.

Business organization was relatively simple until the time of the Industrial Revolution which set up machine production and established the merchant capitalist. The predominant form of business organization

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[2] Alvin Brown, Organization: A Formulation of Principle (New York: Hibbert Printing Company, 1945), p. 3.

today is the large corporation with management acting as intermediary between investors and workers. Management realizes the importance or organization. Without it there would be chaos in our economic system made complex by mass production and the intricate and extensive systems of distribution of goods.

Statement of the Purpose of the Study

The purpose of this study was to analyze organization charts received in response to two hundred requests sent to large companies. Criteria for the purpose of analyzing the charts were set up, and the charts were analyzed according to conformity with the principles of organizational content and structure.

Organization may be applied to society and business. Organization in society embraces the family, state, and church and belongs to the field of sociology or political science. Organization in business consists generally of all enterprises in which man engages to earn a livlihood. It is with the latter that this study is concerned. To limit the scope still further, this study is concerned principally with large corporations, although some of the charts to be analyzed are those of the service units of the municipal, state, or federal government. Furthermore, the study concerns present status of organization rather than future planning.

Importance of the Problem

Writers who have had statistical data to present have found various graphs, charts, and tables indispensable in the understanding of these data. These devices present data in a compact well-organized manner; they give an overall and comprehensive picture; and, although explanatory matter usually accompanies such charts, they are complete and explanatory within themselves.

Organization charts serve much the same purpose although their use is more limited in that they cannot be used independently of textual material. However, their use to portray business organization is less extensive when compared with the extent to which other charts are used to present other data. Evidently businessmen do not realize the importance of charts or are opposed to them for reasons real or traditional. This is shown by the large majority of letters from corporations from which charts were requested that stated that the request could not be complied with because the corporation did not have organization charts. On the other hand, those corporations that did comply were mostly large corporations with prestige and a history of success. Some of the charts were comprehensive, including a master chart with several subsidiary ones. This, coupled with the consideration that charts are used extensively by governmental agencies is indicative of their importance. Brown says:[3]

> To some minds, charts are the alpha and omega of organization. Any temptation to decry this notion, however, is speedily abated by contemplation of others who are too neglectful of organization to be interested even in this fragmentary exercise.

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[3] Ibid., p. 295.

Furia gives the following explanation:[4]

> . . . . the organization chart is a basic tool in the analysis of an organization, if prepared for the purpose of revealing information, rather than concealing or confusing it. . . . but if constructed according to uniform standards and used with its limitations in mind, it will prove a valuable tool in public administration.

If it is said that the chart is inadequate insofar as it cannot define authority and responsibility, it must be said for the chart that language is unable to give the picture of relationships which the chart can. There is enough of the mechanical aspect of a chart that enables the maker to manipulate the parts and to construct the plans for a smooth running organization; this, abstract language cannot do. It has been said that if the chart were thrown away at the moment of its completion, it would have served a good purpose.[5] Thus it can be seen that a chart is as necessary for organization as organization is for enterprise. According to Schreiber, "The organization chart serves to show the ideal, and the most effective manner of making changes. It shows how to pursue the ideal and how to formulate the best plans of actual organizing. It serves the same purpose to the organizer as does a set of plans for the architect."[6]

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[4] John J. Furia, How To Make and Interpret Functional Organization Charts (New York: New York University Bookstore, 1943), p. iii.

[5] "Company Organization Charts," Conference Board Report No. 64 (New York: Industrial Conference Board Reports, Inc., 1944), p. 3.

[6] Norman B. Schreiber, Philosophy of Organization (Chicago: A. Kroch and Son Publishers, 1943), p. 45.

The following uses of the functional organization chart may well apply to all organization charts.[7]

1. It provides a quick, clear picture of what an organization is doing and through what channels it carries on its work.

2. It aids the administrator in discovering where there may be dual authority, or vague lines of authority, and thus, by their elimination, may lead to greater organizational unity.

3. It indicates where there may be unnecessary duplication of functions and may point the way to their elimination.

4. It may help in an analysis of the effectiveness of an organization by showing gaps or points wherein sufficient control is not clearly indicated.

5. By revealing the effective features of some parts of the organization, it may suggest ways of extending such improvements to other parts of the organization.

6. It may suggest a need of further study as to whether some unimportant functions are being overstressed and important functions neglected.

7. It may suggest combinations of functions by showing that certain functions are split up in too many organizations or subdivisions.

8. It may indicate possible lines of future development and expansion.

9. It is helpful in making budgetary plans and setting up budgetary controls.

10. It serves to show the location and distribution of all personnel.

11. It is useful in personnel classification and clarification of levels. . . .

12. It may provide an opportunity for comparative study of personnal requirements of similar subdivisions.

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[7] Furia, op. cit. pp. 55-56.

13. It may show where a particular official is responsible for the control of too many subordinates.

14. It may point to the need for reclassification, by a comparison of civil service titles with office titles and actual duties.

The organization chart is an useful aid in all the stages of organization, and a guide for necessary changes in the organization as the need arises.

Analysis of the Study

The analysis of the study resolves itself into the following major divisions that are subdivided into minor sections:

1. How well do the charts conform to the principles of organization?
   a. How many levels of authority are there?
   b. Are there too many levels of authority so that the lines of communication are too long and operation difficult?
   c. What is the proper number of subordinates reporting to an immediate superior? If too few, there will be too many levels of authority; the lines of communication will be too long for proper control; and there will be waste because the superior has too few to supervise. On the other hand, if there are too many reporting to an immediate superior, he will be unable to supervise them properly.
   d. According to the standard nomenclature, are all divisions

of equal rank on the same level?

e. Are lines of authority and responsibility clear-cut? Is there overlapping or dual authority?

f. Is there duplication of work?

g. What are the classifications of the charts - line, line-and-staff, functional or combination?

h. What are the methods of divisions of work - product, process, territory, or function?

2. How consistent and logical is the structure of the charts?

a. Beyond what size should the charts be broken down into master and subsidiary charts?

b. What is the form of charts used - inverted tree, pyramid, or horizontal?

c. Are the boxes consistent in size with the level of authority?

d. Do the boxes contain unnecessary textual material which should be shown in manuals or write-ups?

e. Do the size and construction of connecting lines indicate degree of authority or information?

f. Do the charts contain a legend which is comprehensive and understandable?

g. Are the lines constructed so as to show proper relationships?

h. Are the name of the company and the title of the chart plainly shown?

i. Are the name of the constructor, the signature of the approving official, and the date of the construction

shown on the chart?

The construction of an organization chart consists of (1) content, or applying the principles of organization to (2) structure, or the framework.

Method of Procedure and Sources of Data

The library was consulted as one source of data. In addition, two hundred large companies were selected to which letters were sent requesting a copy of their organization chart. These charts were analyzed in accordance with criteria set up in another part of this study.

In reply to the two hundred requests, 49 companies sent charts; 33 sent letters which stated that the company had no chart; nine companies replied that their charts were in the process of revision; 11 companies could not comply because of policy or military restrictions, while 98 companies did not reply, which leads to the conclusion that either they did not have charts or did not wish to submit them.

Of the 49 charts received, Table I shows the distribution according to type of business. Manufacturing companies contributed the largest number, 33. Next in number contributed were public utility companies with nine charts. Distribution concerns contributed three, government agencies two, and one life insurance company and one transportation company contributed one chart each. Companies submitting charts are not listed in the appendix inasmuch as the letter requesting charts stated that the identity of the corporation would not be disclosed.

TABLE I

CLASSIFICATION OF COMPANIES SUBMITTING CHARTS

Business	Number
Distribution	3
Government	2
Life Insurance	1
Manufacturing	33
Public Utility	9
Transportation	1
Total	49

Few companies sent their accompanying write-ups which prevented a closer analysis than otherwise would have been possible, since a chart is a graphical representation giving an imperfect but overall picture. A textual statement is necessary for a clear and precise definition of authority and responsibility. The lack of write-ups, however, did not hamper the analysis of construction.

Some of the companies in addition to sending charts, included copies of reports to stockholders, pamphlets on organization, and textual material in their letters of transmittal. These were especially useful, combining both aspects of primary and secondary data.

Materials on organization of the Tennessee Valley Authority proved helpful.

A copy of the letter of transmittal used is contained in the Appendix.

Review of Related Literature

The writer was unable to find any related studies. All textbooks on office and business management, which were consulted, contained scant discussion of organization and present skeleton information on charts. Each text contained similar material, but gave a far from comprehensive picture.

The most comprehensive literature on construction of charts was a pamphlet by John J. Furia.[8]

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[8] Furia, op. cit. 64 pp.

Inasmuch as a study of charts requires that some space be given to the discussion of organization, the library was consulted for material which would discuss the principles of organization. Brown in the quo warranto to his book on the principles of organization, says:[9]

> In the course of these years my knowledge of the subject has doubtless had also those imperceptible accretions which are the usual consequence of reading. Yet, when, some two years ago, it occurred to me to review my accumulated store of conviction, I realized that nowhere within my ken existed any comprehensive statement of the principles of organization. The Encyclopedia Brittanica, indeed, has no article thereon nor reference thereto in its index (although it does discuss army organization).

The Bibliography contains other references on the principles or organization which proved helpful in this study.

It seems peculiar that little conscious thought has been given to organization. Brown's explanation is embodied in the concept that organization just comes "natural" and that comprehensive formulation of principle is derived by the intuituve process rather than by rationalization.

In response to the letter requesting organization charts, one large manufacturerer of aircraft sent a pamphlet on organization control which used pictogram organization charts and defined and explained organization and related terms in a practical, easily understood manner.

Organization of the Study

To set up criteria by which the charts can be compared with the

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[9] Brown, op. cit. p. 5.

principles of organization, legal organization and administrative organization and the terms associated with organization.

The tools and devices of scientific management will be discussed in Chapter II. These are important from the standpoint of division of labor, flow of work, the different components of the work, and supervision, so that the span of control of each person and the amount of work for which he is responsible are definite and that no overlapping or duplication will take place.

Organization charts will be discussed in Chapter III. Also, the criteria for analysing the charts as to structure will be presented.

Chapter IV consists of organization, charts and write-up of a hypothetical firm.

The Bibliography and Appendix follow Chapter IV.

CHAPTER II

THE STRUCTURE AND CONTENT OF ORGANIZATION

The Eighteenth Century philosophy which declared that all men are created free and equal had a profound effect not only upon the political, but also upon the economic life of nations. Because it was believed that a man should be allowed to speak and worship as he chose, it was natural to contend that he should be allowed to conduct his business affairs without interference. It was from such thinking that the types of business organization today arose, based upon concepts of individualism and competition.

Development

The doctrine of "laissez-faire" was widely accepted even before the publication of Adma Smith's "The Wealth of Nations" in 1776. It was especially harmonious with the tenor of American ways. Life in the Colonies, especially frontier life, was rugged, physical strength was at a premium, and complete independence and freedom from any control were prized. Taxation without representation was only a statesman's paraphrase for a hurt pride at having to be obligated to the King of England. This character of the American mind was further illustrated when "state's rights" made ratification of the Constitution possible only through compromise. Thus, America and the philosophy of "Laissez-faire" developed together. Such a companionship has been the basis for

business organizations as they are now understood.

Donaldson says:[1]

> Rugged individualism, freedom of contract, and the institution of private property, are all a part of "laissez-faire" philosophy. Our modern types of business organizations, such as the partnership and the corporation, are based on these institutions. With certain exceptions, business up to the present time has continued to operate under a laissez-faire regime.

This philosophy of "laissez-faire" has been modified, however, especially in the last fifteen years. Such acts of Congress as the Sherman and Clayton Anti-Trust Acts, the Federal Trade Commission Act, and the Federal Reserve Act, indicate the power of government to regulate business. Other examples are those passed including the Federal Securities Act of 1933, the Wagner Act, and the Social Security Act.

Government regulation has brought the realization that the ultimate authority to organize and transact business rests with the government, that the first level of authority is the government based on national sovereignty. The line of authority represents the right of the government to establish requirements for legal organization and also to prescribe and to enforce regulations to protect the interests of innocent parties and the general welfare. The information flowing back to the government in the form of reports makes possible the enforcement of regulations and the collection of taxes.

The increase in government regulation influences business organization, by influencing policies. The choice of organizing a partnership instead of a corporation may be to escape the regulations to

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[1] Elvin F. Donaldson, Business Organization and Procedure (New York: McGraw-Hill Book Company, Inc., 1938), p. 5.

which corporations are subjected. But, as Newman explains, ". . . . the individual entrepreneur may find competitive and governmental regulations a harder taskmaster than a line executive,"[2] so that not even the sole proprietor escapes. Bethel says,[3]

> No field of activity, no single enterprise of any kind, no productive or trading process, and no part of all the service occupations now remain outside the area of regulations.

In contrast to the amount of interference in legal organization, there has been much less attempt to determine administrative policies and thereby organization of business. Even the prohibition of interlocking directorates in certain forms of business is considered to be legal rather than administrative regulation.

Business organization, therefore, may be viewed as (1) legal, or the formation of business by law or (2) administrative, the internal administration following the formation.

Legal Organization--Establishing the First Level of Authority

Newman says "From the legal angle we are interested in the form of ownership, the rights and responsibilities of the owners under each legal form, and the effect of the form of ownership on the activities of the enterprise."[4]

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[2] William H. Newman, Business Policies and Management (Cincinnati: South-Western Publishing Company, 1940), p. 423.

[3] Lawrence L. Bethel, et. al., Industrial Organization and Management (New York: McGraw-Hill Book Company, Inc., 1945), p. 23.

[4] Newman, op. cit., p. 331.

The two types of legal organisation are those formed at common law and those created by statutory law. Donaldson defines common law as ". . . . an accumulation over a long period of years of the customs of the people as interpreted by court decisions."[5] The individual proprietorship and general partnership have been called "common law" types of organisation. They existed before there was any law applicable to them and arose from the action of the individuals concerned with no action of the state necessary. Except in states which have enacted statutes or codified the common law, the forms of business organizations other than the corporation and special forms are governed by the unwritten law.

Statutory law, the written law, is that enacted by Congress and the legislatures of the various states. Corporations and certain forms of partnerships are governed by statutory law. Although states have tried to make their corporation codes complete, recourse must still be made to common law to cover those cases not covered by the written law.

Under either the common or statutory law, jurisdiction over business organization rests primarily with the various states. In accordance with the Tenth Amendment to the Constitution, all powers not specifically granted to the Federal government were reserved by the various individual states. The powers relating to business organization were not given to the Federal government and so came to be possessed by the states. The difficulties which attend such an arrangement will be discussed under corporations as well as the power of the Federal government to control interstate commerce.

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[5] Donaldson, op. cit., p. 9.

As far as the discussion of the legal forms or organization is concerned, it is of primary importance to show that the owners and managers of the business, the first level of authority, derive responsibilities and rights from the law. The different forms of organization vary in ease of formation, cost of formation, liability of the parties, amount of capital needed, durability and stability, control, legal status, sphere of influence, the type of organization, the relationship of owners to the business and, in turn, administrative organization from top management to the lower levels. Many forms of organization exist, but the three basic forms are the individual proprietorship, the partnership, and the corporation.

Individual Proprietorship Form of Organization

The individual proprietorship together with the partnership is referred to as the "common law" type of organization. An individual may decide to enter business and do so immediately without permission of the government. Since an individual proprietorship consists of one person, the capital is likely to be small. The ease of formation and the simplicity of organization result from the fact that the business and the individual are not considered to be separate. The legal implication is that since the individual and the business do not have separate existence, the individual proprietor has unlimited liability. If the assets of the business cannot satisfy creditors, the personal property of the proprietor may be levied upon. Generally speaking, the individual proprietorship may be carried on with the same freedom which an individual may have.

This means that any kind of business can be transacted as long as it is not unlawful. Therefore, the sphere of the individual proprietorship is unlimited.

Probably the outstanding characteristic of the individual proprietorship from the standpoint of organization is its directness of control and ease of direction. Donaldson describes it:[6]

> In the individual proprietorship the proprietor is king. In him lies the entire control of the business and the determination of the direction which it will take. Modern business demands quick decisions, and the fewer the number necessary to consult, the more readily may decisions be made.

At the same time, the individual proprietor may not be capable to make decisions, and because of this limitation, the business may be handicapped.

The final characteristic to be considered is that of secrecy. Regulation by the government is less in the proprietorship and the partnership than in the corporation.

The influence which such characteristics may have upon organization are:

1. Employing limited capital, the business is usually small, and the proprietor will have direct contact with all employees. There will be little delegation of authority and, therefore, few levels of authority. In most instances, each employee will be directly responsible to the proprietor.
2. Because of the size and the ease of formation, little thought will be given to organization. It is unlikely that the proprietor will have full-time or even occasional advisors. A simple line

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[6] Ibid, p. 22.

organization is probable, being formed almost instinctively rather than by planning. Furthermore, no advice from associates is forthcoming.

3. All profits will accrue to the proprietor, and all liabilities will be unlimited. He will, at first, want complete control himself, putting all employees under close surveillance. Later he may delegate some authority or increase the responsibility of trusted employees. One or two employees may even have responsibility and authority equal to a partner in some cases. The law of agency—if the proprietor is aware of it—will affect delegation of authority. As the business grows, authority must be delegated or else a bottleneck at the first level will result. The reluctance to trust many employees may be caused by inability to pay comparable salaries of larger firms and thus to employ efficient workers.
4. Organization may be hampered because the proprietor may not wish to divulge secrets.

Partnership Form of Organization

Except when specifically alluded to, the various types of partners and partnerships other than general partners and partnerships, will not be discussed. The general partnership, with a few exceptions, represents the partnership type of organization.

Partnerships, like individual proprietorships, are common-law organizations and are usually formed in the same way. Donaldson defines

a partnership as, "an association of two or more persons carrying on as co-owners a legal business for profit."[7]

The ease of formation is shown by the way in which the contract of partnership becomes effective: either written, oral, or, for the interest of third parties, implied. The written contract, in the form of articles of co-partnership, is now required in some states, but even where it is not required, the written contract may prevent difficulties. The implied partnership may arise from sharing of profits or by common ownership of property. A partnership by estoppel is established when an individual represents himself to be a partner or permits such representation to be made, and this representation is relied upon by another party who acts on the faith of such representation.

The contract of partnership must contain all the aspects of any other contract to be legally binding.

This contract creates a characteristic that is peculiar to the partnership in that each partner is the agent of the other. Being an agent makes the act of any partner binding on all the other partners except where the goods or services contracted for cannot possibly be used by the partnership. Except for this restriction there is unlimited liability.

The relations of the partners to each other are fiduciary. They must act in good faith and exercise reasonable skill and diligence at all times.

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[7] Ibid, p. 33.

Like the individual proprietorship, the cost of formation with regard to taxes and fees is negligible. Only individual and property taxes must be paid.

The capital assembled in partnerships varies greatly. It is difficult to obtain partners because of the unlimited liability feature and the agency powers of the partners. Therefore, the capital may not exceed that of many proprietorships. Some large partnerships such as the Carnegie Steel Company, the Baldwin Locomotive Works, J. P. Morgan & Co., and Kuhn Loeb & Co., have assembled capital comparable to large corporations.

General partners in a general partnership have equal voice in management. It is this characteristic which makes a written contract of partnership important.

The legal status of a partnership is similar to that of the individual proprietorships and is regarded by law as a collection of individuals.

The sphere of activity of the partnership is similar to that of the individual proprietorship.

As an organization, the partnership enjoys the same freedom from government regulation as the individual proprietorship. J. P. Morgan & Co., declined incorporation because of the secrecy which a partnership affords.

With the following exceptions, the conclusions regarding the individual proprietorship are the same for the partnership:

1. Some partnerships have high capitalisation; therefore, the business is large, and direct contact with all employees is impossible which makes delegation of authority imperative to efficient organization. There are several levels of authority, and perhaps the partners specialise in certain work.
2. Assuming that the partnership just formed is large, there will probably be considerable thought given to organization. The rights and responsibilities of each partner will be defined in detail in the articles of co-partnership. If the firm is large enough, technical advisors may be employed. Such procedure differs from tacit understanding prevalent in small partnerships. Any type of administrative organization may be found.
3. The keen interest which a partner has in a business stems directly from the profit motive and from the unlimited liability responsibility. As soon as the partnership is completed, there is set up a crosswise relationship among partners. If all partners are amenable and competent, and if the duties and responsibilities have been carefully defined, there is a good chance for harmony on the first level of authority. Such is not always the case because some partners are more competent and strict than others. It is the reluctance among such partners to release responsibility to the less competent and less strict that causes friction. The delegation of authority and responsibility to employees on lower levels

is the next problem to be solved. The determining factor in "tightness of control" is the unlimited liability and the desire to make a profit.

4. The limited government interference in the partnership is looked upon favorably by some firms. The reluctance to share information with those who could use it advantageously is detrimental to efficiency.

Corporation Form of Organization

The corporation represents the dominant form of business organization today. The huge amount of capital assembled and the proportions to which many corporations have grown have made definite control imperative. The corporate form of business is largely responsible for the emphasis upon administrative organization.

A statutory form, the corporation does not have the ease of formation as the individual proprietorships or partnerships. There are definite procedures, reports, statements and organization fees to be paid not to mention the groundwork of promotion and subscription to stock. Nevertheless, the establishment of a corporation is a relatively simple matter, but much more complicated in comparison to the common-law types.

The large amount of capital which can be assembled by a corporation is one of its great advantages and the reason which this form is dominant today.

A corporation is restricted in its sphere of activity. It cannot operate in a state other than that in which it was incorporated unless

it meets the regulations of the other states and pays the required taxes.

Because it is created by law, there is more regulation by the government than in any of the other forms. This regulation is necessary because of the limited liability placed on shareholders.

There are four outstanding characteristics of a corporation as far as this study is concerned. Newman[8] lists them as independent identity, limited liability, perpetual life, and ownership represented by shares of stock.

A corporation was defined by Chief Justice Marshall in the Dartmouth College decision as an "artificial being, invisible, intangible, and existing only in contemplation of the law." This definition seems to stress artificiality which would imply almost phantom existence. Even so, for legal purposes, it is considered to be a collection of individuals or as a person or citizen. Donaldson says:[9]

> The legal entity in general will be upheld by the courts so long as it is being used for legitimate purposes, but if it is to be used as a shield by its members behind which to hide in the perpetration of fraud, the equity courts especially will disregard the legal fiction and look behind it to the real persons at interest.

In considering the corporation a person or citizen, he says:[10]

> The corporation is a "legal" or "artificial" person, and whenever the word "person" is used in law it may be assumed that it includes the corporation unless it is expressly excluded, or unless it was not intended to be so included.

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[8] Newman, op. cit., p. 343.

[9] Donaldson, op. cit., p. 72.

[10] Ibid., p. 73.

Thus, if a corporation may perform transactions in its own name, own and exchange property, and enter into contracts, it may also be held responsible to the extent of the limited liability of its shareholders for legal commitments.

Newman explains limited liability in the following way:[11]

> Except in special cases, stockholders are not responsible for corporate debts due to the fact that a corporation is a separate legal entity. In other words, the private property of the stockholders usually cannot be taken to satisfy the debts of a corporation any more than the private property of one individual can be taken to satisfy the personal debts of another individual.

A corporation has perpetual life in that its existence is independent of its owners. Whereas a partnership would terminate at the death or withdrawal of a partner, either of the happenings would not affect the legal life of a corporation.

Ownership is represented by shares of stock. The activities of the corporation are carried on by a board of directors which is elected by the stockholders, the number of votes being determined by the number of shares owned by each stockholder. Ownership changes when shares are transferred, but such transfer does not disrupt the operation of the corporation.

The following considerations are important for the purpose of this study:

1. The dominant type of business organization is the corporation. Huge amounts of capital are assembled for such business endeavor. Those persons charged with the management of the

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[11] Newman, op. cit., p. 343.

business find it possible to contact personally only a very small percentage of the employees. A plan for apportioning and defining responsibilities and for delegating authority is imperative. Organization is complex with several levels of authority and employs to some degree all forms of administrative organization in combination. First of all, the levels of authority may be grouped into three classifications such as that stated by Niles[12] who breaks up management of a life insurance company into top management (board of directors, president, and senior administrators), middle management (junior administrators and supervisors), and rank and file (workers).

2. Corporations have given much conscious thought to organization as a means of providing efficiency in order to compensate for certain costs peculiar to this form. Some companies have planning committees which advise company officers and planning departments whose work permeates the entire business. Although some partnerships may have similar organization, it has been the corporation which has been responsible for a high degree of organization. In a large business, control must be definite.

3. Because of the limited liability feature of a corporation, owners of stock are not as solicitous as a partner in a

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[12] Mary Cushing Howard Niles, Middle Management, The Job of the Junior Administrator (New York: Harper & Brothers Publishers, 1941), 270 pp.

partnership. Stockholders know the limitations of their possible loss. It is rather unimportant to them who controls the business as long as a reasonable return from their investment is obtained. The trend toward proxy voting or not voting at all represents their lack of interest in actual management. In a corporation, then, it can hardly be concluded that actually the first level of authority consists of the owners of the business. There is one exception --a single stockholder who owns a large percentage of the stock. If he is interested and competent enough, he will usually use his voting power to secure a directorate. A small number of stockholders may elect the directors.

The board of directors may properly be considered the first level of authority.

But, in some cases, the board of directors become careless in the performance of their duties accepting without hesitation the proposals of top management. This is what Lester has to say:[13]

> Not infrequently the top officials (the hired management) treat the corporation as their personal province. . . . There is often a separation or cleavage between the interests of the managers, the interests of the owners, the interests of the public, and the interests of the employees.
>
> Numerous examples could be cited to indicate how some corporation managements have disregarded the interests of the owners, labor or the public in order to perpetuate their own powers and control.

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[13] Richard A. Lester, Economics of Labor (New York: The Macmillan Company, 1941), p. 23.

What, in reality, therefore, becomes the first level of authority is top management. The incentive to operate efficiently may come from either a desire to hold a job or win promotion or salary increase, or to obtain actual profit if the executive concerned owns considerable stock.

Actual management is passed from the stockholders through the board of directors to top management. Such an arrangement may prove advantageous if top management is competent.

4. Of all the forms of organization, the corporation is more subject to government regulation. This is due to its statutory character. The affairs of the corporation are made known not only to the government but to the public as well.
5. The sphere of activity of many corporations has spread to states throughout the country and to foreign countries. This growth has caused subsidiary forms of organization to come into existence.

Administrative Organization—Establishing Levels of Authority Below the First

Broadly speaking, legal organization established the business, the first level of authority, the ownership, and little more than this. More specifically, as has been shown, legal organization determines the form of ownership, the rights and responsibilities of the owners under each legal form, and the effect of the form of ownership on the activities of the enterprise.

Administrative organization, on the other hand, comes into use after the business has been established. For instance, at the time of

incorporation, a business may consist only of the individuals who own the stock. To proceed with the endeavor, individuals (management and workers) must be employed. The internal co-ordination and management of the business to accomplish its purpose is the part played by administrative organization. Newman explains administrative organization in the following statement:[14]

> From the administrative angle we are concerned with determining the activities to be performed, classifying these activities into groups, fixing responsibility for the performance of each group of activities, and establishing the proper relation between them.

Niles says:[15]

> The integration of all the functions of a business into one harmonious whole is the dominant administrative problem of internal operation. . . . Co-ordination extends through policy making and execution to control of the results and affects every function of the business.

In discussing administration, Brown[16] considers it to consist of three phases--planning, doing, and seeing.

The effectiveness of administration is influenced largely by the type of organization used.

First and most important of the tools used by management to build an efficient smooth-running enterprise is the organization chart. It is the skeleton or structure upon which is built organization. Its accompanying writeup explains in more detail the internal details of organization.

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[14] Newman, op. cit., p. 331.

[15] Niles, op. cit., p. 216.

[16] Alvin Brown, Organization, A Formulation of Principle (New York: Hibbert Printing Company, 1945), p. 83.

The type of organization used has come about either by definite planning or accretion of new departments and relationships to an old tacit understanding. Those formed by planning can best be understood by discussion of characteristics, while the latter can best be understood by showing how they evolved. A combination of the two can be used.

Line Organization

The following is a definition of line organization by Furia:[17]

> In the line type of organization, each subordinate is directly responsible to only one superior for all matters, and authority flows directly downward from the top of the organization through the successive levels.

In a pamphlet prepared by the Lockheed Aircraft Corporation management, line organization is described:[18]

> Line organization is the simplest kind of structure. A person is responsible for each unit. Lines of authority flow directly from the top to the bottom and reports come back from the bottom to the top.

The explanation is extended and made clearer in this statement:[19] "Lines of authority are from the top down. As to authority, people on the same level are independent of all other on the same level."

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[17] John J. Furia, How to Make and Interpret Functional Organization Charts. (New York: New York University Bookstore, 1943), p. 2.

[18] Lockheed Aircraft Corporation, Organization Control, an unpublished company pamphlet.

[19] Loc. cit.

The first two definitions stress only the vertical relationship which is strongly characteristic of the line type. The horizontal relationship, though more important in other types of organization, is present to some degree if for no other reason than for unofficial information. The proper means of viewing organizational structure, then, is from the standpoint of vertical and horizontal relationships.

In the line type, the vertical structure is practically all that exists. According to the National Industrial Conference Board, "A line executive has complete authority of execution over that part of the organization beneath him in rank and which is in the scope of responsibility assigned to him."[20] Taking the Army as an example, normally a General in the Air Corps would not be within the scope of his authority to give orders to a private in the Infantry. The first consideration is rank, and the second is scope. On a chart, rank is shown by its occupying a position nearer the top of the chart, and scope by the connections made by solid lines. Using the term "department" broadly it can be said that for one person to give orders to another, these persons must be in the same department, and the one giving the orders must hold a higher position than the other.

Orders do not pass directly from the highest to the lowest, but rather through successive levels or strata in relay fashion which are the chains-of-command as developed by the military. Responsibility and

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20 "Company Organization Charts" Conference Board Report, No. 64 (New York: National Industrial Conference Board, Inc., 1944), p. 4.

information are relayed from bottom to top in the same way.

The horizontal relationship is that which exists between individuals or subdivisions on the same level or in the same strata and is practically nil in the line structure.

Vertical structure is determined by how many individuals are needed to perform the work and by the number of subordinates which can be efficiently supervised. Horizontal structure is determined by classification of activities.

A pure line organization from a technical standpoint never exists. "It is difficult to conceive of pure line organization in business administration except in an establishment with very few employees engaged in simple operation."[21] The example[22] is given of a shoe repair shop in which every employee does identical operations even to ringing up receipts. The contention is that if a person is hired for ringing up receipts alone, the organization becomes functional and not line. Brown, in discussing modes of organization, gives as the first mode "multiplication of effort."[23] This would apply to pure line organization where the effort of each worker is identical.

To be purely line, there must be no interdependency or no crosswise relations between individuals horizontally. For practical purposes, the distinction cannot be carried that far.

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[21] Ibid., p. 4.

[22] Loc. cit.

[23] Brown, op. cit., p. 152.

Line organisation has been criticised severely. Frederick W. Taylor says that it is characterised by "individual arbitrariness at the top, usurped and delegated power down the line, anarchy everywhere."[24] This statement is more a criticism of the individuals who compose the organisation than of the organization itself. A more substantial criticism is based on the term "chain-of-command." "A chain is no stronger than its weakest link." Not only could the flow of orders be disrupted at any level, but because of the less efficient individuals at successively lower levels, the longer the path, the more spent the orders will be upon reaching the bottom level. A line organization does not make full use of specialisation and division of labor. Figure 1 illustrates line organization. Each subordinate is responsible to only one superior. In this figure B_1 and B_2 are responsible only to A_1; C_1 and C_2 are responsible only to B_2; D_1 and D_2 are responsible only to C_2; D_5 and D_6 are responsible only to C_3; and D_7 and D_8 are responsible only to C_4.

Line-And-Staff Organisation

All other types of organization are but variations and supplements of the line type. All other types originate from the line and embody part of it. The following is a definition of line-and-staff organization by Furia:[25]

> In the line-and-staff type of organization, the simple line organization is supplemented by advisory and consultory subdivisions which have however, no direct authority over the line personnel.

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[24] Ibid., p. 274.

[25] Furia, op. cit., pp. 2, 3.

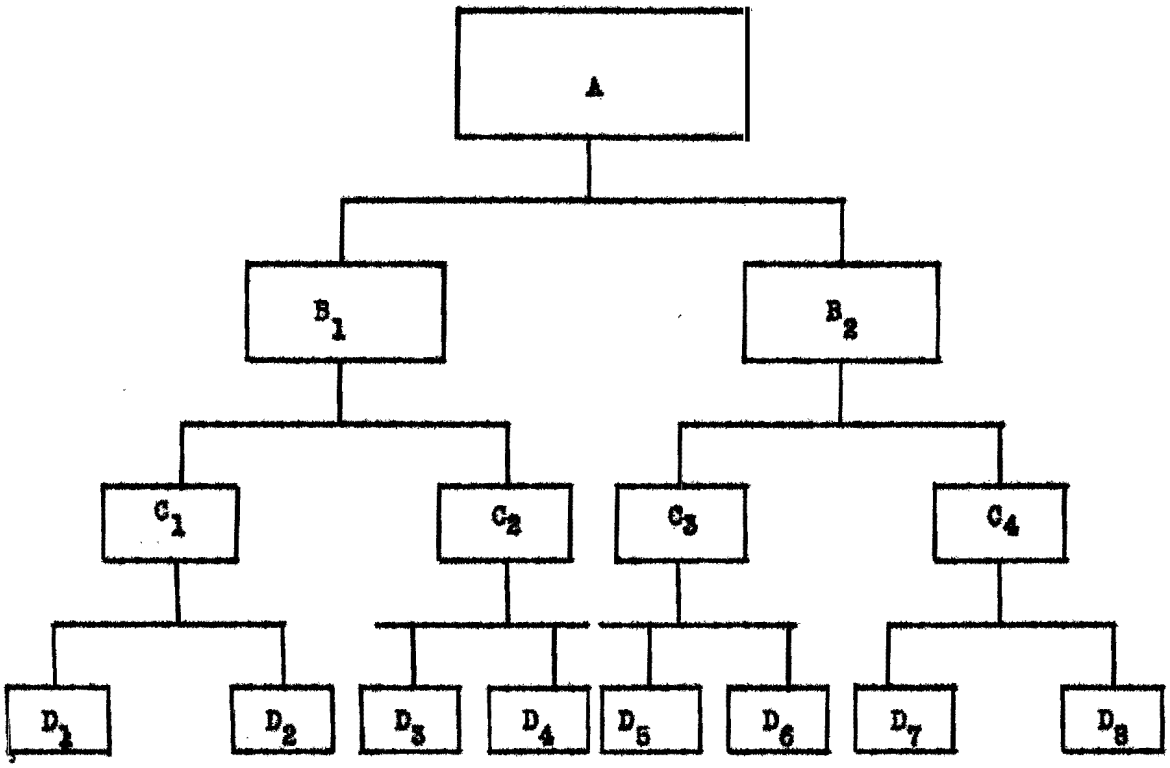


FIGURE 1

LINE ORGANIZATION

The Lockheed pamphlet describes line-and-staff in this way:[26]

> A line-and-staff organization combines the best features of the line organization. . . . with the addition of an expert or experts in an advisory, fact-finding, or planning capacity. These specialists do not give orders to the workers concerned, but make recommendations to line supervisors who carry them through.

The distinguishing feature between line and line-and-staff is merely the presence of the staff. Staff in this sense must be construed as the total personnel of the organization or as advisory committees. Neither must it be considered, as some executives refer to staff, as the subordinates under a particular executive, who carry out his orders. The term staff, when used in this way, is not only irrelevant to this study, but stresses plurality or individuals rather than relationship. An individual, unit, or group, may compose a staff. So wide has become the misinterpretation of this term that many companies use alternate terms such as "auxillary department" or "service department." But these terms are similar to the term staff. For example, a mail boy in an office serves in the capacity of an auxillary, but not as a member of the staff.

Perhaps the best way to explain line-and-staff is to consider the way in which this type of organization evolves. Industrial Conference Board Report No. 64 explains:[27]

> The staff relationship appears when managerial functions become complex enough to require the need of assistants who will share the executive's load by investigating problems for him, assembling information, developing plans and providing advice.

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[26] Lockheed Aircraft Corporation, op. cit.

[27] Conference Board Reports, op. cit., p. 4.

The following are distinguishing features of the staff:

1. Duties consist of sharing the load of persons to whom responsible by investigating problems, assembling information, developing plans, and providing advice.
2. There is no line authority over other subdivisions of the organization; the only connection is by a single line with the person to whom responsible.
3. No action is taken, but it is reserved for the line men.
4. There is specialization which supplements and extends the line.
5. There is authority to look into any appropriate activity, but none to give instructions unless specified. Figure 2 illustrates the line-and-staff type organization. This type differs from pure line organization by the addition of staff units S_1 and S_2 which assist A, S_3 and S_4 which assist B_1 and S_5 and S_6 which assist B_2.

Functional Organization

Conference Board Report No. 64[28] carries the example of the shoe repair shop further to explain how functional organization evolves. As long as each employee performs all operations individually even to ringing up receipts, there is line organization, because there is merely multiplication of effort. As soon as a business advances beyond the

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[28] Ibid., p. 5.

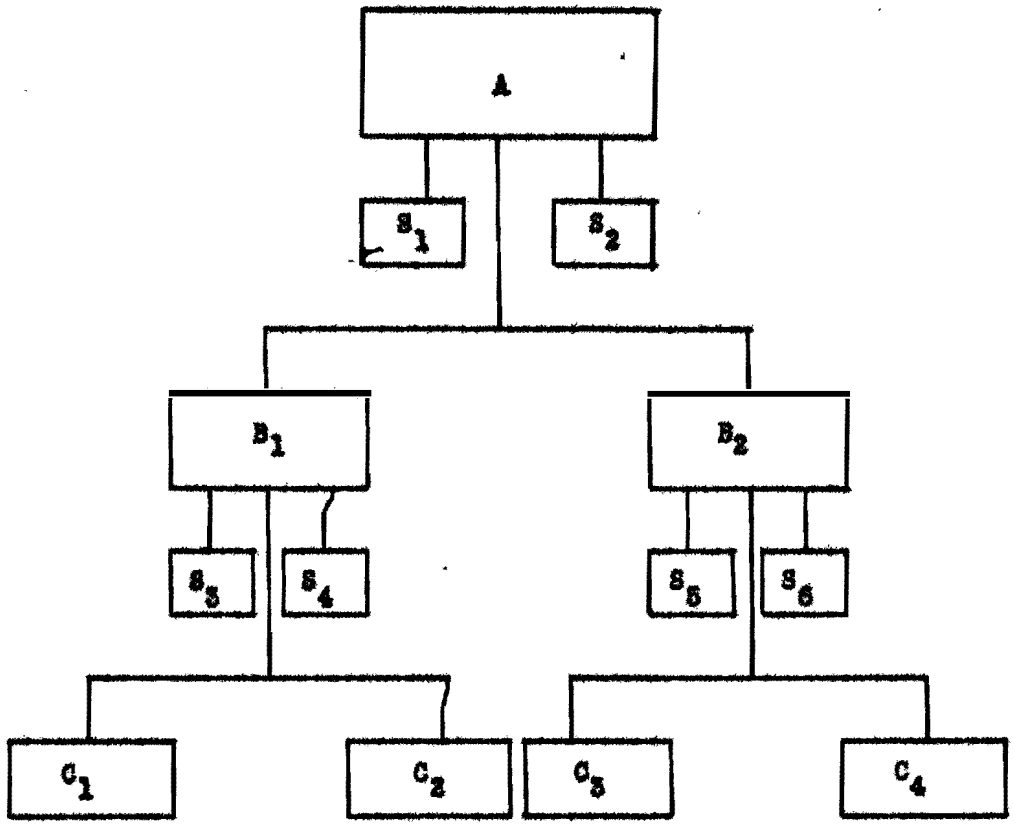


FIGURE 2

LINE-AND-STAFF ORGANIZATION

simplest stages, there is a tendency to divide the work and assign logical groups of activities to individuals who thereafter make a specialty of the work. This is the usual meaning of functional organization in which the definition of "functional" is misleading. Brown defines "functional" in its ordinary sense as "the work relates to any differentiation of duty, faculty, or office."[29] The Army employs line organization, but there are definite functions performed by the Air Corps, Quartermaster Corps, Infantry, and Artillery. This conception of functional organization does not allow for differentiation from either line or staff organization. Where organization has been divided according to function or activity, an individual or unit actually performs in the capacity of a staff unit because of limited authority. Bethel[30] describes such organization as line-and-functional-staff.

To be a distinct type of organization, there is the necessity of having distinct characteristics. There must be a difference in structure as shown on an organization chart or by definition of relationships in write-ups. Furia reveals the distinguishing characteristic of functional organization in this definition: "In the functional type of organization, authority flows to lower-level subdivisions from more than one source according to the activities or specialties involved."[31] He warns of the common usage and explains further, "As used here, it describes a particular kind of authority, responsibility, and working relationship among

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[29] Brown, op. cit., p. 5.

[30] Bethel, op. cit., p. 138.

[31] Furia, op. cit., p. 4.

various subdivisions, a series of multiple, limited line relationships."[32] Functional organization violates the biblical law that "no man can serve two masters." Figure 3 shows such organization on a chart. Subdivisions C_1, C_2, C_3 and C_4 are all responsible to B_1 and B_2; subdivisions D_1, D_2, D_3, D_4, and D_5 are all responsible to C_1, C_2, C_3, and C_4. Each unit on the "C" level reports to and is responsible to both superiors on the "B" level. Each unit on the "D" level reports to and is responsible to all four superiors on the "C" level.

This type of organization has been criticised because of its split-authority and split-responsibility, and the contention is that there can be no unified command. Brown says "the so-called 'functional' chart is largely a vain aspiration."[33] Whether or not this type of organization is efficient depends to a great extent upon the individuals in the organization.

Functional organization does attempt to eliminate the inefficiencies of line organization by permitting the interplay of activities in the lower strata. Cooperation and coordination through the use of definite crosswise relations are afforded.

Committee Organization

The committee type of organization is similar to line organization except that a group of persons is responsible for each subdivision instead of an individual. The committee may be temporary or permanent.

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[32] Ibid., p. 6.

[33] Brown, op. cit., p. 295.

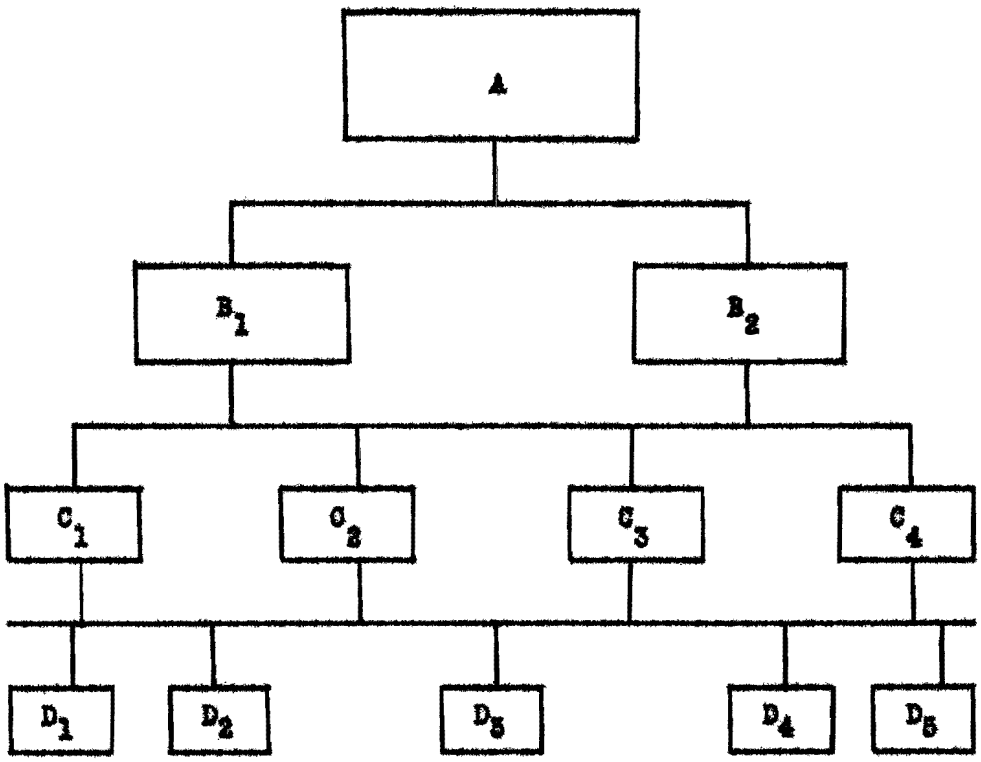


FIGURE 5

FUNCTIONAL ORGANIZATION

Few companies use the committee type organization to any extent.

Combination

From the discussion, it can be seen that there is no definite exclusive line, line-and-staff, or functional organization, but rather variations and extensions of types. A business may have parts of all types included in its chart. Combination types are usually found with characteristics of one type predominant.

Table II shows the type of organization used by companies submitting charts. All the charts were combinations of two or more types. Organization was essentially line-and-functional-staff, i.e., the structure was line and the work was divided by function. Therefore, each subdivision acted in a staff relationship.

The Meaning of Organization

The objective of business organization in a capitalistic economy is profit for the owners. Since concerted action of several persons has proved superior to the efforts of one, business organization today is characterized by large numbers of people working together, some employers and some employees. "The duties of each person must be decided upon and an umpire selected to settle disputes. Organization determines the amount of time, the manner, and the responsibility for getting everything accomplished."[34]

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[34] A. B. Zu Tavern, "Management In Business," Flexible Teaching Units, No. 19, (South Pasadena, Calif: Commercial Textbook Co., Ltd., 1942), p. 205

TABLE II

ANALYSIS OF TYPE OF ORGANIZATION USED BY COMPANIES

Business	Line	Line-and-staff	Functional	Committee	Combination[a]
Distribution					3
Government					2
Life Insurance					1
Manufacturing					33
Public Utility					9
Transportation					1
Total					49

[a] All charts were essentially line-and-functional-staff; i.e., the structure was line, and the work was divided by function. Therefore, each subdivision acted in a staff relationship.

Brown defines organisation as "the part which each member of an enterprise is expected to perform and the relations between such members, to the end that their concerted endeavor shall be most effective for the purpose of enterprise."[35]

Planning, which establishes the major and minor policies of the business, is the first step. Policies determine the relations with the public as well as relations of individuals and units within the business. "By organization a framework of authority and responsibility is established through which policies established by management are administered."[36]

Administration is the means by which organization is put into practice. It is organization at work.

Bethel considers the following to be basic principles of organization:[37]

1. Definite lines of responsibility and authority must be established.
2. Provision must be made for the grouping of specialised work and the appropriate division of labor in terms of the manufacturing requirements of the product.
3. Consideration must be given to the abilities and specialized skills of existing and available personnel in order that they may be used to the maximum.
4. Unauthoritative lines of coordination and facilitation must be developed for the promotion of harmony and understanding.

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[35] Brown, op. cit., p. 6.

[36] Bethel, op. cit., p. 130.

[37] Ibid., p. 132.

Classification of Activities or Division of the Work

So far, except for mention of auxiliary function, organization has been considered in its vertical structure--levels of authority. The organization structure horizontally is concerned with the division of levels into units such as the establishing of departments, divisions, or units.

Classification of activities is most important at the higher levels especially departments headed by executives directly responsible to the president or owners of the business. Such classification is dependent upon major policies relating to the public or other companies. At lower levels, internal policies relating to administration, supervision, and coordination, tend to establish size and number of units. These factors, together with the type of organization, also determine the relations between subdivisions on the same level. A third type of policy is the departmental or the policy set up by each subdivision. These must not conflict with the policies of the business as a whole.

To show how major policies influence organization, Newman compares the sales organization of a company that sells only by mail to the ultimate consumer with that of a company which sells only to retailers.[38] The first company will need departments to handle preparation and distribution of catalogues, file orders, and handle correspondence. The other company will need salesmen to call on retailers and will probably have a territorial sales organization with field supervisors and branch offices.

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[38] Newman. op. cit., p. 380.

The principal ways of dividing the work are by product, process, territory, types of consumer, and function.

A first-hand example of product, process, and territory classification is given in the Lockheed pamphlet on Organization Control:[39]

> A process is a complete function such as machining, painting, electrical assembly, design engineering, or inspection. A product may be an entire fighter plane or bomber, or it may be the product of a single department or other unit, such as a bomber door, a wing, an instrument panel, etc. A region may be an area such as the Denver Service Area, or a plant location such as Pomona, Bakersfield, or Santa Barbara.

More typical of division by territory is the use of sections of the country such as East Coast, West Coast, and Southern, for the purpose of organization. Included in type of customer are independent retail, chainstore, mail order, and wholesale.

According to Newman, "These departments that are responsible for performing one group of similar activities for all product departments, such as credits, record keeping, and maintenance are called functional departments."[40]

All companies classified activities primarily by function as indicated in Table III. Parts of the organization of some companies were on territorial division, but in determining means of classification, the preponderant method was taken.

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[39] Lockheed Aircraft Corporation, op. cit.

[40] Newman, op. cit., p. 406.

TABLE III

CLASSIFICATION OF ACTIVITIES[a]

Business	Function
Distribution	3
Government	2
Life Insurance	1
Manufacturing	33
Public Utility	9
Transportation	1
Total	49

[a] Classified as to preponderant method.

The preceding discussion was concerned with the structure or skeleton of organization--the vertical and horizontal framework. The definition of terms and the explanation of relationships represented by this framework is the content of organization. The content is verbal or tacit, and not graphic, and is found in organization write-ups which accompany charts, organization manuals, bulletins, and other means of publication which inform personnel. The terms themselves are not published but rather internal policies which embody the terms.

Authority and Responsibility

The reciprocity between these two terms has caused them to be linked. As shown in the discussion of legal organization, no matter how high a position an individual holds there is responsibility. Urwicks says:[41]

> To hold a group or individual accountable for activities of any kind without assigning to him or them the necessary authority to discharge the responsibility is manifestly both unsatisfactory and inequitable.

Authority and responsibility are respectively "the right to require action of other," and "the accountability for the performance of duties."[42]

For an understanding of authority and responsibility as far as relationship is concerned, it is enough to say that for compatible

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[41] L. Urwicks, The Elements of Administration (New York: Harper Brothers Publishers, 1943), p. 46.

[42] Ibid., pp. 41,42.

organization that there must be complete reciprocity; one must equal the other. No person should be held responsible for doing a thing unless authority is given him to command the performance of his subordinates.

Authority has both the broad and the technical meaning. Generally speaking, the president of a company has authority over the lowest-level worker. Actually, in line organization--and all organization is line--authority passes from top to bottom through levels or relays, or as is spoken in military parlance, "chain-of-command." The authority-responsibility relationship is, then, that between principal and deputy. The broader meaning of authority is better considered in the definition of other terms including coordination, span of control, delegation of authority, or supervision. Definition and discussion of each of these terms follow, from which it will be seen that authority-responsibility reaches out over several levels or that one principal has several deputies.

Supervision and Span of Control

These two terms are used interchangeably. Niles says, "The term 'span control' has been applied to the number of persons whom an officer can effectively have reporting directly to himself. An officer may supervise indirectly thousands of people; he may come into contact with dozens; but he can supervise directly only a limited number."[43]

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[43] Niles, op. cit., p. 32.

The number which an individual can supervise, however, is arbitrary. There are several factors to be taken into account.

First of all, there is the physiological limitation. This is illustrated by the number of digits that an individual can remember. Next, is the consideration of individual differences. More important for purposes of this study are the factors given by Niles:[44]

1. The clarity and practicability of the organization plan.
2. The interdependence of the person concerned and of the work supervised.
3. The character of the persons concerned, both of the organizing and administrative ability of the chief and the capabilities and make-up of the subordinates.
4. The type of work.
5. The stability of the business and its personnel and the frequency with which new types of problems arise.

Table IV gives the results of an attempt to determine the mean number of subordinates on each level. Because of irregular construction of most of the charts such analysis was not conclusive. Furthermore, master charts without their subsidiary charts gave the impression that the largest number of subordinates was in the upper levels. For instance, the second level showed an average of 6, and the third, fourth and fifth levels, 3, 3, and 3 respectively. The sixth level through the tenth showed only 1 or 2.

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[44] Ibid., p. 32.

TABLE IV

MEAN NUMBER OF SUBORDINATES ON EACH LEVEL[a]

Business	Number of level								
	2	3	4	5	6	7	8	9	10[b]
Distribution	6	4	4	1	1	1	1	1	1
Government	5	2	3	3	3				
Life Insurance	12	2	3	1					
Manufacturing	5	2	3	3	2	2	2		
Public Utility	5	4	4	3	2	1			
Transportation	4	5	1	5					

[a] Number of units on level divided by number of immediate superiors.

[b] The lower the level, the larger number of subordinates that can be successfully supervised. Incompleteness of charts is probably responsible for the larger number on the upper levels.

Delegation of Authority

Whenever a superior finds that he has more work than he can do or too many subordinates to permit efficient supervision, he has recourse to delegation of authority. This may be done in either of two ways. He may apportion some of his work among chosen subordinates without promoting them, or he may choose an individual from a group to be in charge or to supervise the remainder of the group. In the later case, he has shortened the structure horisontally, but lengthened it vertically; he has made supervision easier for himself, but at the same time has made communication lines longer. According to the Lockheed Corporation phamphlet,[45]

> In order to maintain control of his unit, the leader must delegate authority and the responsibility of supervision. He appoints assistants among whom he divides responsibility of directing and controlling the activities of the employees. He will give the necessary authority for making decisions to these assistants. These assistants report to him. His responsibility is then the directing of their activities. Instead of managing twenty-five men, he manages two.

Niles gives the number to be supervised on each level as follows:[46]

1. At the lowest level ten people report to a junior supervisor.
2. On each higher level, five supervisors report to nine superior supervisors.
3. Thus with four levels, a junior administrator, assisted by five division heads could supervise 250 clerks and workmen. Whereas with five levels and 125 sub-section heads he could supervise 1250.

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[45] Lockheed Aircraft Corporation, op. cit.

[46] Niles, op. cit., p. 36.

As indicated in Table V, 13 companies used four levels; 10 companies used three levels; and 10 companies used five levels. The only other levels used frequently were six and seven with six companies each.

Co-ordination

Coordination is the means by which a superior dove-tails all the activities under him in order to accomplish an objective. It means more specifically the prevention of misunderstanding which results from uneven and definite lines of authority and responsibility, working at cross purpose, poor timing, and duplication of work.

Chapter Summary

The doctrine of laissez-faire in this country has been modified during the last fifty years by government regulation. The increase in government regulation has influenced businessorganisation by influencing policies. The choice between organising as a partnership or as a corporation depends to some extent on government regulation.

Legal organization is concerned with the form of ownership and the rights and responsibilities of the owners under each legal form. The principal forms of legal organisation are the individual proprietorship, partnership, and corporation.

Administrative organization is concerned with determining the activities to be performed, classifying these activities into groups, fixing responsibility for the performance of each group of activities,

TABLE V

LEVELS OF AUTHORITY[a]

Business	Number of level								
	2	3	4	5	6	7	8	9	10
Distribution			2						1
Government					1	1			
Life Insurance	1			1					
Manufacturing	1	8	7	6	5	4	2		
Public Utility		2	4	2		1			
Transportation				1					
Totals	2	10	13	10	6	6	2		1

[a] A subdivision was considered to be on another level if not in a staff relationship and reported to a superior. The preponderant number of levels gave the figure used.

and establishing the proper relations between them. The principal types of organizational structure are line, line-and-staff, and functional. The committee type is not a distinct structure but can be included. Most structure will combine two or more of the foregoing types.

Organization has been defined as a means by which a framework of authority and responsibility is established through which policies established by management are administered.

The horizontal structure of organization is established by classification of activities. The principal ways of dividing the work are by product, process, territory, types of consumer, and function.

The content of organization is verbal or tacit as interpreted from the framework. Content of organization is found in organization write-ups which accompany charts, organization manuals, bulletins, and other means of publication which inform personnel. Such terms as authority, responsibility, and supervision must be discussed and understood so that relationships will be definite.

Coordination is the means by which a superior dove-tails all the activities under him in order to accomplish an objective.

The methods and instruments of scientific management used in fitting personnel to the organization include job analysis, time and motion study, flow and progress charts, application blanks, interviews, qualification cards, tests, and rating scales.

Survey of Methods and Instruments of Scientific Management

After the organization structure has been completed, the problem of fitting personnel to the organization so that the business may operate smoothly arises. To fit personnel to the organization is especially difficult because organization itself is continually changing as new needs present themselves. As in legal and administrative organization, definite policies must be formulated, and techniques must be found to carry out these policies.

The problem of maintaining the right worker in the right job comes within the field of personnel management. The prime considerations are: (1) the position or job and its requirements and (2) the worker and his qualifications to fill these requirements. The concept of the "worker-in-his-work unit" is advanced in, "this concept has profoundly influenced modern thinking about organization and management. . . ."[47] According to this concept, there are three factors that determine whether or not a worker is well-adjusted to his work. These factors, which should be well balanced, are: capacity, interest, and opportunity.

The methods and instruments used by management have for their purpose, the performance of personnel individually and severally in the organization to the best advantage. Even with perfect organization otherwise, if it were possible, there would still exist the variable, the human worker, to prevent perfect operation. Several methods and

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[47] Walter Dill Scott, Robert C. Clothier, Stanley Mathewson, and William R. Spriegel, Personnel Management (New York: McGraw-Hill Book Company, Inc., 1941), p. 12.

instruments have been devised to fit the worker to his work.

Job Analysis. This term has received criticism because of the narrow interpretation that can be applied to the word "job". Generally speaking, job analysis can be applied to those "positions" at the higher levels as well as those at the lower levels. The term is used in this study since it is in common usage, and there is little chance for ambiguity.

According to the War Manpower Commission, "Information concerning jobs is the basic material used by industry, governmental and private agencies and employee organizations for many programs ranging from broad types of activities, such as personnel and placement, to very specific ones, such as defining the limits of authority."[48] The division of work in an organization is accomplished by assigning specialized duties to individuals, and the different jobs, occupations, or positions to which individuals are assigned are established. The various programs to which the War Manpower Commission[49] refers are: recruitment and placement; vocational counseling; job and employee evaluation; training; better utilization of workers; safety, health, and medical research; labor relations; and within-plant policies. These programs and many others depend upon an understanding of the work.

Job analysis as defined is, "the process of critically evaluating the operations, duties, and relationships of the jobs."[50] The analysis

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[48] Training and Reference Manual for Job Analysis, June 1944 (Washington, D. C.: War Manpower Commission, Bureau of Manpower Utilization, Division of Occupation Analysis and Manning Tables, 1944), p. 1.

[49] Ibid., pp. 2, 3.

[50] Scott, op. cit., p. 237.

pertains to the work, but obviously the worker and what he does must be considered at the same time.

"The first step in the analysis of jobs," says the War Manpower Commission, "is an exact determination of what the jobs are and their precise limits, that is, where the jobs begin and where they end."[51]

The next and final step as far as job analysis is concerned is the determination of what the job consists of. Job description, job specification, and job evaluation, are part of the analysis since they record, list requirements, and rank the jobs, respectively. They are the end results rather than the means.

Information concerning jobs may be obtained from personal observation by the analyst, both of the job and of the worker during performance. In order to get more complete information, the worker himself should be interviewed before the interviewer with the supervisor. If possible, the analyst should perform the job himself. The information is recorded on a data sheet and then transferred to a work sheet from which a description is made. The description shows the duties, responsibilities, and other requirements of a particular job and is concerned with the job itself rather than with the worker. The job specification lists the qualifications which a certain worker should have to fill a certain job. Following is a list of factors to be considered: duties, responsibilities, tools and equipment, working conditions, education, experience, physical

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[51] War Manpower Commission, op. cit., pp. 2, 3.

requirements, special training, technical skill and personal qualities. Finally, job evaluation, or job rating, to use an interchangeable term, assigns a place on a scale for the job with reference to its relationship to other jobs as to difficulty and importance.

The purposes for engaging in job evaluation, the final product of job analysis, as indicated by the Socony-Vacuum Oil Company, which Bethel records, are:[52]

> To secure a complete, accurate, and impersonal description of work done by each employee. This is the basis for all further considerations.
>
> To determine the relative value of the various positions (or kinds of work done) in a department and to line up similar jobs in different departments.
>
> To define the lines of organization and to determine responsibilities and channels of authority.
>
> To furnish full information in convenient form for the use of the employment office in connection with both initial employment and transfer possibilities.
>
> To determine fair minimum and maximum salaries for each position (or kind of work done) throughout the organization, including initial salaries and wages for new employees.
>
> For use in making salary adjustments, to learn whether or not any employee's salary is decidedly above or below the limits set for the kind of work he does, and why.
>
> To establish a basis of comparison when checking company salaries with those paid generally for the same kind of work in the community.
>
> To facilitate recognition of merit and promotion to positions of larger responsibilities, thus stimulating ambition.
>
> To furnish a basis for training employees for greater efficiency and for positions of greater responsibility.

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[52] Bethel, op. cit., p. 555.

Time and Motion Study. The time and motion study is actually a part of job analysis; the worker is considered as he performs.

The foundation for such a study is the equation which states that the amount of work done is equal to the output divided by the input. In other words, no more can be obtained from a job than is put into it. No argument is needed, however, to support the statement that some individuals can do more work, in less time, and expend less energy than others. The conditions which management desires are those in which the worker can increase his output and at the same time decrease the time and energy expended. The problem is merely one of finding the lost motion and lost time, and of eliminating them.

Several methods have been employed, but all of them do little more than time the operation and observe the motions of the worker. Then, ways are sought to eliminate waste motion and thus shorten the time and lessen the effort.

The study is applied to elements of the job and not to the entire operation although the time for each element may be combined to give the time for the entire operation. After the job has been broken down into its distinct operations, each operation is timed and the motions are observed. The minimum equipment is a stop watch. A motion picture of the employee at work with a specially designed clock in the field of view gives a picture of every motion and the time required to make each motion. To set up standards, an "average" worker should be used, and such factors as motivation and supply of materials must be considered.

A simple example of time and motion study is the operation of separating carbons from paper in typewritten material. At first the

operation required as many motions as there were sheets of paper and carbon. To overcome this, one corner of the carbons was cut off and at the bottom of the page the carbons were allowed to extend a fraction of an inch from the paper. This arrangement permits the paper to be grasped at the corner and the carbons at the bottom. Separation can be one motion.

Flow and Progress Charts. Flow and progress charts show the route of work throughout the organization. The study of the flow of work is a time and motion study of the entire organization, or parts of it, coordinating the various jobs and determining the precedence of performance for the most efficiency. The assembly line in an automobile factory illustrates flow of work, although the line is only a segment of the organization. Each worker performs a specific operation as the "work" passes him. At least four things are necessary in charting flow of work:

1. First things must come first. The performance of some operations preclude the performance of others.
2. There must be a standard time as determined by time and motion study for the performance of each operation. On the assembly line or in the office a bottleneck develops if more time is taken than allotted.
3. There must be an orderly arrangement of tools as determined by time and motion study. Much time and motion are lost by reaching for tools not properly placed. The importance of having the right tool at the right time is illustrated in

the operating room where an assistant hands the instruments to the surgeon. Prelocation of tools is one vital factor in work simplification.

4. There must be a constant and orderly supply of materials. In industries where the worker is paid on a piece-rate plan, it is incumbent upon management to prevent work stoppages. A faulty flow of materials is more serious in preventing smooth operation.

Methods and Instruments which Determine the Qualifications of the Worker

After an analysis of what the job consists of and requires, the problem is to find a suitable worker to perform the work. In a large enterprise, many jobs must be performed and a suitable worker for each job should be selected. A large part of the work performed by a personnel department is that of employment which consists principally of finding the workers, of encouraging them to apply, and of selecting them for the jobs which they are most capable of doing. The labor market will have an influence upon the number from which to choose, but selection is largely the work of personnel management.

Management uses many methods and instruments to obtain information about an applicant and to determine what he can do.

Application Blanks. The information required on the application blank by different companies varies according to the efficacy with which items prognosticate ability and behavior. The application blank is so

well-known that the "why" of most items is hardly necessary to mention.

The information requested in application blanks include certain personal data such as name, address, sex, race, dependents, date and place of birth, and telephone number; experience including previous employers and positions held; education; physical data secured from the physical examination; references; interviewer's rating; position desired; and availability of the applicant.

Personal Interview. The personal interview as used by management is not merely a device for deciding the fitness of applicants. Management has come to look upon the interview in the same way as in other employer-employee relations - dual interest. Therefore, an applicant is given facts about the company and the work as well as furnishing the company with facts about himself. This is a reasonable procedure in that it helps fit the employee to the work by letting him know what to expect.

The interview is useful in other ways than in initial employment. Six distinct classifications are set up in the field of personnel management.[53] They are: (1) Preliminary employment interview which precedes the filling in of the application blank and serves the purpose of "weeding out." (2) Placement interview, held after the application blank has been completed and tests have proven the applicant's eligibility for employment somewhere within the company. It is this interview which should "obtain information, give information, and make a friend."[54]

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[53] Scott, op. cit., p. 75.

[54] Ibid., p. 105.

The placement interview is the hiring interview. (3) Follow-up interview which gives more information and clears up any misconceptions in the new employee's mind. (4) Counseling interview which renders service to employees by helping them to avoid many of the pitfalls of discontented workers, helps improve morale, and lowers the unit cost of production in the long run. (5) Routine personal interview which handles such matters as wage advances, transfers, promotions, and special vacations without pay. (6) Final separation interview which attempts to find and prevent the causes of labor turnover by interviewing those who quit voluntarily. The reason for discharge may be given at the time of the separation interview.

By personal contact, the interviewer is able to elicit information about an individual which is not possible by written application blanks.

Qualification Cards. All information concerning interests and capacities obtained from the application blank, the interview, tests, or other sources is condensed and recorded on a permanent cumulative record called the qualification card. After the applicant has been hired, a history of his progress with the firm is necessary. To a personnel manager, "the file of qualification cards is the organization's index of manpower, not as an indication of the number of persons available, but as an indication of their combined effectiveness in service."[55]

In addition to data obtained from other sources, there are the records while with the company containing information concerning salary,

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[55] Ibid., p. 105.

promotions and transfers, accidents, suggestions and complaints.

Tests and Rating Scales

Tests and rating scales, in contrast to other means which obtain information from statements given by the applicant, are more or less objective in approach.

Tests. The application interview, and references furnish information which is largely subjective. The ability of the applicant cannot be determined totally from his statement or from the opinions of other employers or friends. Furthermore, these sources do not prognosticate his success in learning a new job. Tests have been invented to supplement these other means.

The following outline gives some idea of the number of tests used in business and industry:[56]

The following tests are those designed to measure aptitudes[57] to operate things:

I. Work sample tests

A. Measure proficiency already acquired

1. Test for proficiency in typewriting

2. Test for telephone wiremen

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[56] Ibid., pp. 170-211.

[57] Trade tests are not considered aptitude tests inasmuch as aptitude tests measure capacity to learn and preclude experience.

II. Analagous or miniature work tests

A. Artificial situation calls forth reactions similar to actual situation

1. Link Belt trainer

2. Roadscope device

III. Special aptitude tests

A. Measure innate capacity to learn

1. Tests for muscular abilities

2. Tests for ability to perceive and to visualize things and mechanisms in their space relationships

The following tests are designed to measure aptitudes to understand and to use ideas (mental-alertness):

I. Similarities and opposites

A. Alike and unalike

B. Same or opposite

II. Information

A. Vocabulary

B. Association

III. Completion

A. Sentence completion

B. Sentence completion with words or certain number of letters

IV. Mathematical

A. Arithmetic problems

B. Selection of correct answer

The following tests are designed to measure aptitudes to understand and manage men:

I. Honesty tests

A. Lie detector

II. Aggression-submission test

A. Bernreuter Personality Inventory

B. Pintner test

III. Extraversion-introversion tests

A. Bernreuter Personality Inventory

IV. Interest tests

A. Strong Vocational Interest Blank

Rating Scales. Such traits, habits, or qualities as dependability, loyalty, leadership, reliability, cheerfulness, and cooperation are not as yet measurable objectively. To measure such traits at all, the best instrument has been the rating scale, a subjective instrument nothing more than a device to make man's judgment of man less subjective.

The two types are (1) man-to-man scale or the Army Rating Scale, and (2) the graphic rating scale. In the man-to-man type a number of men are used as a yardstick; for instance, a rater selects twenty men with whom he is acquainted and ranks them from worst to best in some trait. This ranking constitutes a master scale by which to rate any number of other individuals through comparison. The graphic rating scale uses a calibrated horizontal line with descriptive phrases of a particular trait underneath such as poor, average, above average, and superior.

CHAPTER III

EVOLUTION OF ORGANIZATION CHARTS AND ACCOMPANYING WRITE-UPS

Some type of organization has always characterized human endeavor. Society has always been grouped according to family, clan, tribe, race, or nation. Nations have organized governments and armies. World War I and World War II have both been responsible for attempts at some type of world organization.

Organization charts as they are known in modern business enterprise have had a short history. Until comparatively recently most business firms did not bother to chart their organization. It is unlikely that there was any necessity for such charting until the advent of large business units that became powerful toward the end of the nineteenth century. However, with the growth of large business enterprise, the organization chart became recognized as an important tool of management. For the history of business organization as it is known today, the Industrial Revolution can be used as a starting point. Up to that time the economic endeavor of man had remained relatively simple. The effects of power machinery and the merchant capitalist are well known; they started the trend which has developed today into what is known as "big business."

Table I in Chapter I gives a classification of companies whose organization charts were used in this study. From a request sent to 200 large companies throughout the United States, there was a return of 49. A few factors which prevented compliance with the request, such as company policy and re-making of charts, would tend to make the figure higher.

Indicative of an attitude that still persists is this statement from one company: ". . . . the owners of this business are somewhat opposed to the whole theory of organization charts . . . . " There were no reasons given. Perhaps the most enlightening statement as to why the use of charts are opposed by some companies come from a manufacturing concern.

> It is almost impossible to show in an organization chart the fine distinctions between levels of authority and responsibility. For this reason and others, such as an employee's length of service, background, potentialities for the future, the comparative levels which might be shown in an organization chart are hardly ever comparable to the income levels of the individuals occupying the jobs which appear on the chart.
>
> As a result of these inequalities, publication of organization charts has nearly always resulted in considerable misunderstanding, discontent and in a few grievances.

Contrary to the view taken by a few companies that charts are undesirable, many large companies place emphasis upon the importance of organization charts to organization.

Purpose of Organization Charts

Furia's definition of an organization chart is a "graphic presentation of the structure of an organization, showing the arrangement and the relationships of the subdivisions and the functions of an organization as they exist."[1]

The Industrial Conference Board lists three outstanding advantages of the organization chart.[2]

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[1] John J. Furia, How To Make and Interpret Functional Organization Charts (New York: New York University Bookstore, 1943), p. x.

[2] "Company Organization Charts" Conference Board Report No. 64 (New York: National Industrial Conference Board, Inc., 1944), p. 3.

1. To increase the understanding of the individual employee of his place in the organization and of the operation of the organization as a whole.

2. To help disclose deficiencies in the organization structure, so that these may be corrected.

3. To help in planning—in adapting the organization to changing conditions.

In short, the purpose of the organization chart is the same as that of other charts and graphs, i.e., to present in a condensed graphic form certain information which would be difficult to comprehend readily if presented verbally.

Schreiber says,

> As an aid in determining structure, the chart acts like a map or as a genealogical table. Many executives have found an organization chart, when properly prepared, an invaluable tool. Improper co-ordination, functional duplication, excessive administrative and supervisory effort, all can be discerned more clearly with the aid of a chart than without this valuable tool. After correcting obvious conflicts, this chart can serve as a future guide in plotting the growth or changes in structure, and can also serve as a history of the development, modification, and improvement of the organization.[3]

As an aid to planning, the Industrial Conference Board says, "While no company has what its management considers the ideal organization, it is possible to set down on paper what is thought to be the most desirable plan, and as changes are made to make them in conformity with it."[4]

The organization chart should show company organization as it exists at a certain time. Changes should be made when necessary, and the new chart dated.

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[3] Normal B. Schreiber, Philosophy of Organization (Chicago: A Kroch and Son Publishers, 1943), p. 45.

[4] Conference Board Reports, op. cit., p. 4.

Nomenclature Used in Charting

Nomenclature refers to (1) structure which Furia defines as "the framework of an organization within which activities are carried on,"[5] and (2) designation which is the "name of organization or subdivision."[6]

Structural Parts

The following parts are used in constructing organization charts:

Name. The name of the company and type of chart.

Box. "Rectangle to designate each subdivision graphically."[7] The first level—the owners—is enclosed with a box, but is not considered as a subdivision. The principle to be followed in drawing boxes is that all subdivisions of equal rank be enclosed in boxes of equal size, of a size commensurate with rank, and on the same level.

Two practices may cause the foregoing principle to be violated. Textual material within the box describing the work or setting up duties and responsibilities will tend to make the boxes of unequal size. Staggering to preserve space is permissible, but can cause misunderstanding. Figure 4 illustrates the staggering method. Although all the subdivisions are of equal rank, those drawn lower on the chart seem to be lower in rank, but this is not the case. Subdivisions B_1, B_2, B_3, B_4, B_5, B_6, and B_7 are equal in rank. If drawn on the same level, the subdivisions would require more horizontal space.

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[5] Furia, op. cit., p. xv.

[6] Ibid., p. xi.

[7] Ibid., p. ix.

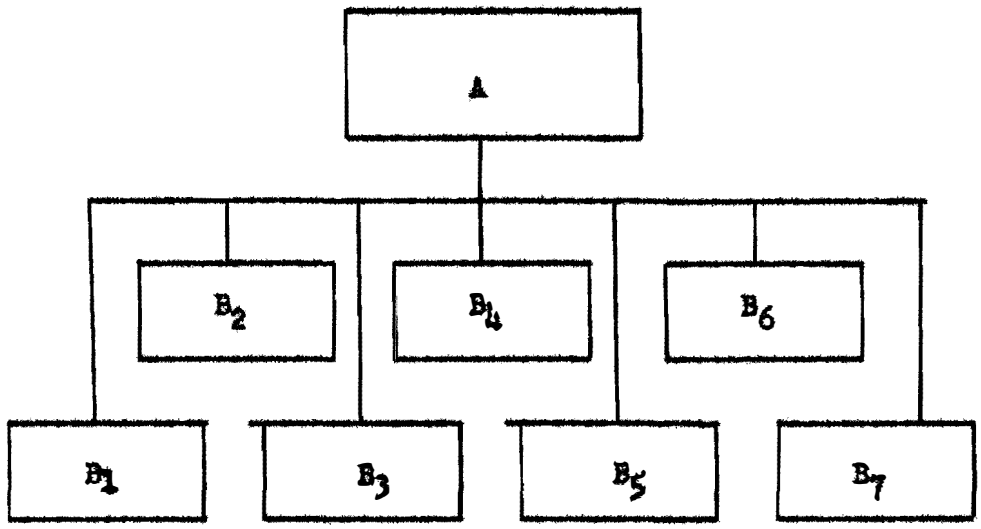


FIGURE 4

STAGGERING

Table VI shows to what extent companies attempt to chart the size of boxes and the levels on which the boxes are placed in accordance with the rank of positions. Forty-four companies used boxes to enclose subdivisions. Of these 44 companies, 18 charted all boxes approximately equal in size, 7 charted the sizes of boxes in accordance with rank, 19 charted the sizes of the boxes irregularly. Twenty-five companies charted the levels of boxes commensurate with rank, and 18 charted the levels of boxes irregularly. One company used the staggering device.

Special Boxes. The standard box is drawn with a solid line. Furia considers the standard box inadequate and gives a number of special boxes drawn with dashes, dots and x's, singly and in different combinations.[8] The purposes of these special boxes are to show permanent and temporary subdivisions in existence, to be created, or to be abolished. These may be full- or part-time. If the chart is to give a picture of the organization as it exists, it does not seem logical that a picture can be taken of something not in existence. The practicability of such boxes is doubtful. Furthermore, the device of special boxes would not be applicable if horizontal-line or pyramid charts are used instead of the inverted-tree type. Other special boxes may be used to show related boxes or performance of special kinds of functions. None of the charts analyzed made use of special boxes.

Lines. The structure of most charts consists simply of boxes and connecting lines. The standard solid line of medium width is used to show

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[8] Ibid., p. 28.

TABLE VI

ANALYSIS OF USE OF BOXES TO ENCLOSE SUBDIVISIONS

Business	Number	Sizes of boxes approximately equal on all levels	Sizes of boxes commensurate with rank	Sizes of boxes irregular	Level of boxes commensurate with rank	Level of boxes irregular	Number of companies using staggering device
Distribution	3	2	1		2		1
Government	2			2	1	1	
Life Insurance	1			1		1	
Manufacturing	31	12	6	12	20	10	1
Public Utility	7	3		4	1	6	
Transportation	1	1			1		
Totals	45[a]	18	7	19	25	18	2

[a] Five companies did not use boxes to enclose subdivisions.

normal flow of authority and responsibility, a heavy line to depict special relationships, and a side arm to connect a staff unit to the subdivision to which it is responsible. Many companies prefer to use the heavy line to show flow of authority and responsibility. In such cases, these connecting lines are heavier than the lines used to construct the boxes.

Since the conception of the flow of authority and responsibility is that of down and up respectively, connecting lines which touch boxes should be drawn vertically. Such connecting lines should be drawn as spurs and perpendicularly to horizontal lines. The violation of this principle is most often in the case of staff relationships where one horizontal line connects the superior to the staff unit, or where units of equal rank are drawn vertically requiring the connecting line to enter from the side.

Broken Line. The broken line is a line to show a special relationship such as flow of information or work. It may be constructed with a number of variations. For instance, broken lines may be constructed by dashes with alternating x's, long dashes with alternating short dashes, or all short or all long dashes. These lines may show flow of work, path of instructions, flow of advice. Broken lines are especially useful to provide for crosswise relations between subdivisions of equal rank in a line organization.

By-pass. The by-pass device is similar to the one used by electricians to show that there is no connection when two lines cross. Instead of permitting the lines to cross at right angles, one of the lines is curved at the point of crossing. The use of this device is justified if drawing of the chart would be made awkward otherwise.

Text. Some charts include within the box explanatory material such as description of functions, duties, and responsibilities; names and number of persons comprising subdivision; and number of persons allowed by budget. It is more feasible to include such material in a write-up attached to the chart.

Symbol. To avoid the repetition and inclusion of much written matter on charts, signs used to abbreviate the written matter are used. These signs are explained in the legend. They are similar to footnote entries.

Legend. The legend is a brief description of the special signs of symbols, lines, or other matter on the chart.

Signature. If the chart is to be made the official administrative tool of the organization, it should be signed by a person having the designated authority, perhaps the maker.

Date. Organization is continually changing, and the chart must show the organization as it exists at the present. A date is essential.

Table VII shows the use of the different structural devices and the content of charts analyzed. Four of the charts did not contain the name of the company. Forty-five of the companies used the square or rectangular box to enclose subdivisions. One company used circles in conjunction with square boxes. Fifteen companies used heavy connecting lines to show authority; 11 used broken lines to show information or special relationships, two used the by-pass device; 13 enclosed textual material within the box; 14 contained a signature or initials; and 46 of

TABLE VII

STRUCTURAL DEVICES AND CONTENT OF CHARTS

Business	Name of company	Square or rectangular boxes	Circles	Heavy connecting lines showing authority	Broken lines showing information	By-pass device	Textual material within box	Symbols and legend	Signature	Date
Distribution	2	3								2
Government	2	2		1			2	1		2
Life Insurance	1	1								1
Manufacturing	31	31	1[a]	10	9	2	12	4	7	31
Public Utility	8	7		4	2		9		7	9
Transportation	1	1								1
Totals	45	45	1	15	11	2	13	5	14	46

[a] Used in conjunction with square or rectangular boxes.

the charts were dated.

Designation of Divisions

When it is necessary to refer to subdivisions of an organization, these subdivisions must be designated by standard nomenclature. The word "department" has been used loosely to refer to subdivisions. To refer to subdivisions as departments, divisions, branches, sections or groups in organization in general is meaningless. A department in one business might be a division or branch or anything else in another. Moreover, there is no standard nomenclature established within some companies and in others the titles do not indicate the work performed. Magee gives this example: "Mr. R. F. Rowland in a committee report on home office organization points out that in 20 companies studied, 70 different titles were used to express the functions of some seven or eight senior and junior officers."[9]

Titles or designations indicate authority, responsibility, and rank. It follows then, that the title or designation should correlate with the levels of authority and the size of the box enclosing it if boxes are used. Subdivisions with the same titles or designations should be on the same level and all should report to the same superior.

Standard nomenclature, in addition to correlating with levels of authority and thus setting limits for authority and responsibility, is necessary for wage and salary control, promotion and transfer, and ties

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[9] John H. Magee, Life Insurance (Chicago: Richard D. Irwin, Inc., 1942), p. 106.

in closely with job analysis.

The number of designations needed depends upon the size of the organization and the number of levels of authority.

Standard nomenclature used by the United States government follows:

Primary classification—department

Subdivision of a department—bureau

Subdivision of a bureau—division

Subdivision of a division—section

Leffingwell uses department, division, section, and subsection as standard nomenclature for office management.[10] More designations are needed when the lower levels of a large organization are designated, such as department, division, branch, section, sub-section, unit, sub-unit, group and sub-group.

An attempt was made in analyzing the charts to determine what was the most common designation of the subdivision just below the executive. Where only one or two boxes of the subdivision were designated and there were no other conflicting designations, it was assumed that these were typical of the level. Titles of individuals within the first subdivision were so diverse even within the same company that analysis was not feasible. For instance, a company might have a manager in charge of one department, an agent in charge of another, or a director in charge of another. Title or rank and the individuals holding them were not consistent with the level of authority.

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[10] William Henry Leffingwell, A Textbook of Office Management (New York: McGraw-Hill Book Company, Inc., 1932), p. 45.

Designations of subdivisions and title of individuals are largely a matter of ranking. The following tabulation shows the correlation which should exist among designations of subdivisions, office titles of individuals, and levels of authority as taken from definitions by Furia for organization of New York City:[11]

Levels	Designations	Office titles
1	Agency, department	Commissioner, administrator
2	Division	Director
3	Branch	Manager
4	Section	Chief
5	Unit	Supervisor
6	Sub-unit	Head
7	Group	Leader

If standard nomenclature could be established, especially within a company, title would indicate rank.

Master and Subsidiary Charts

Brown explains the use of subsidiary charts in the following paragraph:[12]

> For general use it will not usually be desirable to attempt to exhibit a chart of the entire organization on a single sheet. The purpose of an organization chart is to facilitate understanding, and this purpose is not served by one so reduced in scale that it is difficult to read. It will prove much better to use several sheets of the size of a page of the manual.

Attempts to chart the entire organization of large businesses on single sheets are responsible for many grotesque charts. In instances where the sheets are too small, the chart is crowded on the page; in other

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[11] Furia, op. cit., pp. ix-xv.

[12] Alvin Brown, Organization, A Formulation of Principle (New York: Hibbert Printing Company, 1945), p. 300.

instances where large sheets are used, the sheets must be folded several times, and become unwieldy. Both of these faults may be corrected by the use of subsidiary charts.

The master chart usually shows the owners or board of directors, the chief executive officer, the first level of operating subdivisions, and all staff units belonging to any of the foregoing.

Secondary charts are prepared for all first-level operating subdivisions, and show the organization within each of these subdivisions. Where there are five subdivisions such as Controller, Sale Manufacturing, Advertising, and Administrative, it is necessary to prepare a chart for each of these subdivisions. Subdivisions may prepare their own charts subject to approval. Each chart together with a master chart is probably all that a subdivision needs.

Subsidiary charts may be prepared for all subdivisions but secondary charts seem to be sufficient.

The organization chart consists of the master chart and all subsidiaries. Subsidiaries, to be consistent, should follow the plan of the master chart.

Table VIII illustrates the practices of the companies that participated in this study regarding master and subsidiary charts. Only 26 charts could be analyzed in this respect as the other 23 received were single charts. More companies used five subsidiary charts than any other number. The next highest number of subsidiary charts was one. One company used two subsidiary charts.

Whether or not master and subsidiary charts are needed depends upon the size of the organization.

TABLE VIII

COMPANIES USING MASTER AND SUBSIDIARY CHARTS

Business	Number of master charts	Number of subsidiary charts for each master chart 1	2	3	4	5	6	7	8	9
Distribution	1				1					
Government	1								1	
Life Insurance	1									1
Manufacturing	16	3	1	2	1	3	2	2	1	1
Public Utility	5	1		1		1		1		1
Transportation	1					1				
Total	25	4	1	3	2	5	2	3	2	3

Structure of Organization Charts

The structure of charts consists of boxes enclosing subdivisions and lines connecting those boxes, or columnar lists of subdivisions and functions, and lines connecting these columnar lists. The way in which connecting lines are drawn indicates the type of administrative organization--line, line-and-staff, functional, or combinations of these types. The structure of the line--standard, heavy, broken--indicates the function the line serves, whether that of carrying authority and responsibility, information, advice, or flow of work.

Inverted-tree Chart. The most commonly used structure is the inverted-tree chart which, as the name implies, resembles a tree turned up-side down. It consists of one box representing the owners of the company or board of directors with the number of boxes increasing as the lower levels are reached. Figure 5 shows this type of structure employing line-and-staff organization. Staff units A and B are attached by sidearms directly to the box containing superior or to a line extending down from the box containing the superior. Since staff units are subordinate to the subdivision to which the report, the connecting line must be at some place vertical to show this relationship.

Horizontal-line Chart. The horizontal-line chart uses no boxes, but lists subdivisions, functions, and other information in vertical columns with top management at the left and lower levels at the right. Subdivisions are bracketed to permit drawing of connecting lines. Figure 6 illustrates the horizontal-line chart.

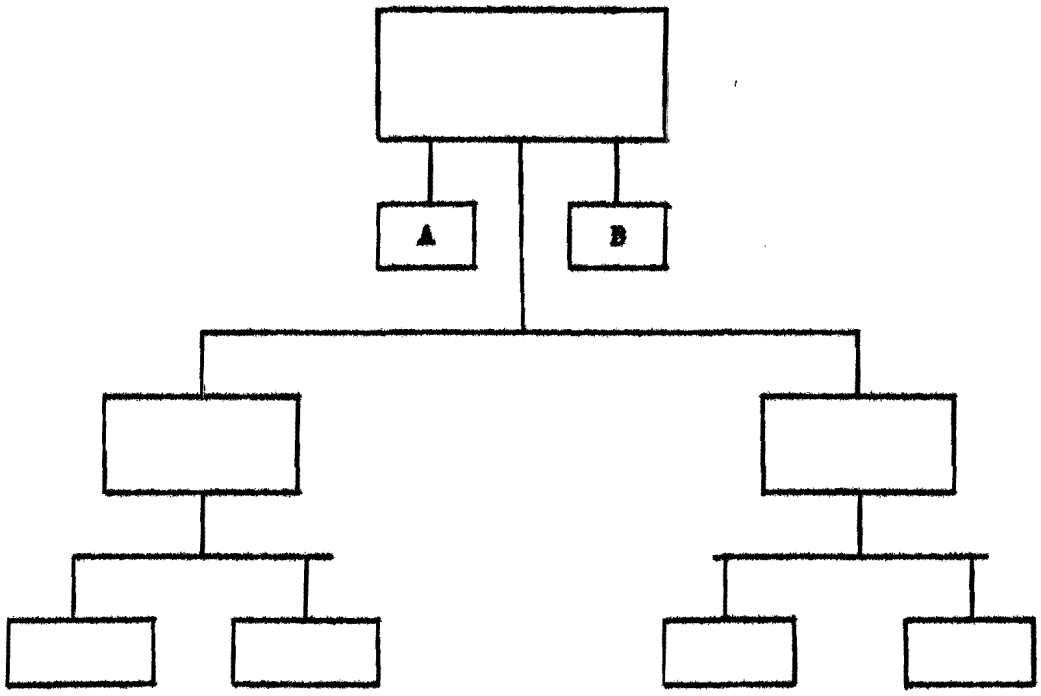


FIGURE 5

INVERTED TREE CHART

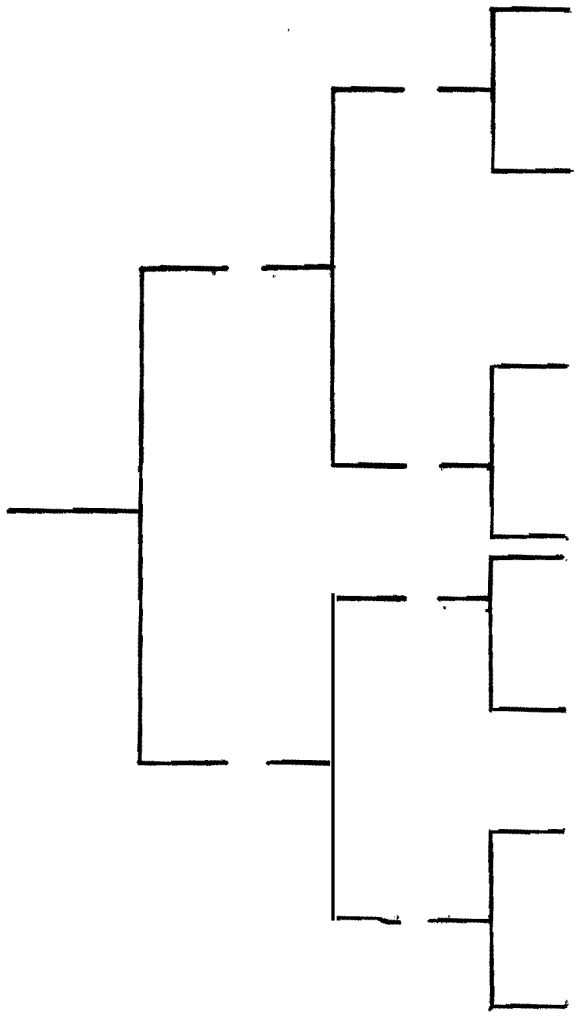


FIGURE 6

HORIZONTAL LINE CHART

The Industrial Conference Board gives this comparison between the inverted-tree chart and the horizontal-line chart:[13]

> While the picture of the organization is probably more quickly grasped in the inverted-tree chart, the horizontal-line chart has an advantage in that more material may be presented within a given space. The horizontal-line chart, too, can be set up on any typewriter, an advantage when charts are revised frequently.

The desirability of such advantages is discussed elsewhere.

Pyramid Chart. According to the Industrial Conference Board, in the pyramid chart "functional and regional divisions are listed in columns, which form the base of a pyramid of which the directors elected by the stockholders are the apex."[14] Figure 7 illustrates this type of chart. This type of chart " . . . . enables functions to be shown in comparatively limited space."[15] Again the question arises as to whether or not functions should be listed on the chart.

Comparisons. The inverted-tree chart seems to fulfill the purpose of the organization chart better than the other two types: it gives a graphical overall representation of the organization that can be quickly grasped. Clarity is important. In fulfilling this purpose, the form is not so compact as the other two types, but the write-up manual is considered the proper means of conveying textual material.

The advantages of the horizontal-line and pyramid types are compactness--more material presented in a limited space--and set-up, which allows material to be typewritten.

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[13] Industrial Conference Board, op. cit., p. 6.

[14] Loc. cit.

[15] Loc. cit.

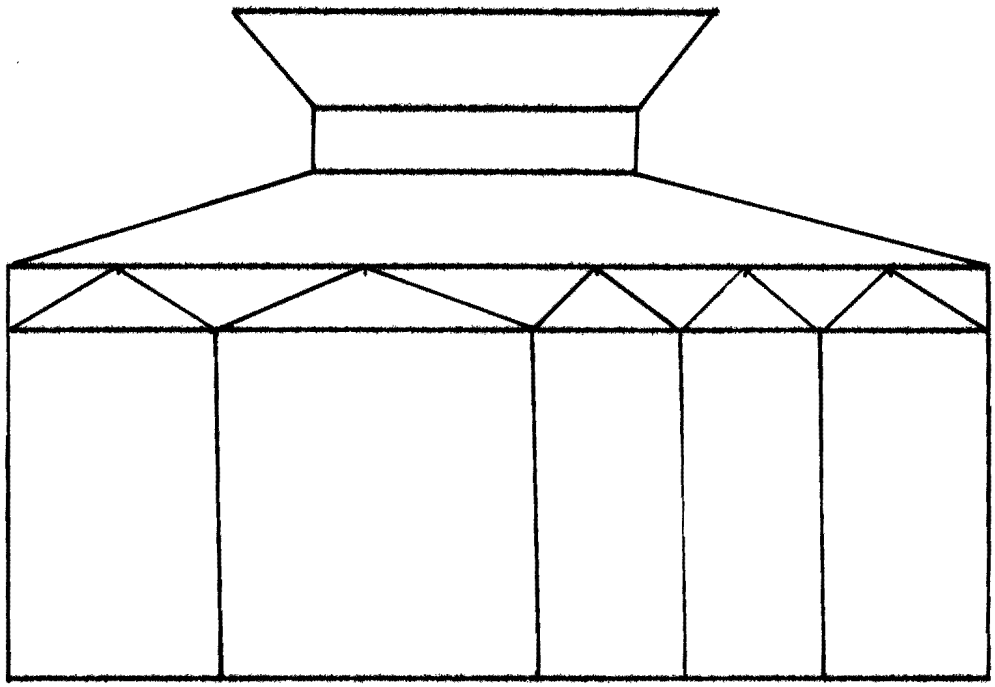


FIGURE 7

PYRAMID CHART

Companies prefer to use the inverted-tree type chart as indicated in Table IX. Forty-three companies used the inverted-tree type chart as compared with two companies which used the horizontal-line type, and three companies which used the pyramid type chart.

Organization Chart Write-Ups and Organization Manuals

The organization chart has as its chief purpose the presentation of an overall graphical structure of an organization. It is not logical to include on the chart details of duties and responsibilities of every worker. Even the internal organization of all the subdivisions of a large company can not be shown on the master chart. Subsidiary charts are used to show internal organization of subdivisions.

Chart-makers differ perhaps because they disagree on the purpose of charts. Some want to include not the designation of the subdivision alone, but also the name of the person in charge, his home address and telephone number, his duties and responsibilities, the number of personnel under him, their names, positions, salaries, and a volumn of other information.

Obviously, the purpose of an organization chart is not to contain such a volumn of information. To try to include textual material results in:

Boxes of Irregular Sizes. When boxes are drawn irregular in size there is no logical correlation between the size of box and rank. Actually, since the data concerning the lower levels are definite and possible to

TABLE IX

TYPES OF CHARTS USED BY COMPANIES

Business	Inverted-Tree	Horizontal-Line	Pyramid	Other
Distribution	3			
Government	2			
Life Insurance	1			
Manufacturing	30	1	2	
Public Utility	6	1	1	1[a]
Transportation	1			
Totals	43	2	3	1

[a] Consisted of a write-up with index numbers showing subdivisions.

enumerate, they fill more space than those of an officer whose duties are abstract and difficult to enumerate. The size of box according to rank is reversed.

Crowding. The arrangement of the structure has no logical order, the vice-president in charge of production, for instance, might fall below the janitor. This violates the principle that level of authority should be commensurate with rank.

The purpose of the organization chart, as already stated, is to give a graphic presentation of the organization.

Leffingwell says, "In addition to the organization chart, there should be a complete write-up, along the line of current practice instructions, detailing the organization as shown by the chart, but discussing each picture more fully than is possible to visualize it from the chart."[16]

The organization write-up should define duties and responsibilities and explain relationships that exist on the chart. Brown considers the write-up of definition of duties and responsibilities in two ways.[17] First,

> The definition will deal primarily, of course, with the duties which are required to be performed. In indicating the limits of these duties, it will probably touch upon some of the relationships which are to exist toward other responsibilities. In thus defining extent, it may be reasonably serviceable. It is not complete, of course, unless it defines degree: the amount of planning and seeing for example, which are to accompany a responsibility for doing in distinction from those parts of planning and seeing, related to the extent of doing, which are to be reserved to the principal or delegated to some other deputy.

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[16] Leffingwell, op. cit., p. 44.

[17] Brown, op. cit., p. 292.

In addition he says that the capacities of individuals should be considered:

> Neither is any definition complete unless it prescribes the capacity of the individual who is to perform it: the requirements of intelligence, education, and experience, or of mechanical skill or energy.

The write-up should be, in such a way as this, a compilation of job descriptions and job specifications.

The organization manual serves the same purpose as the write-up, but is bound and is perhaps more elaborate.

Richard Neumaier gives the following steps in writing an organization manual:[18]

1. Preparation of a complete series of organization charts starting top management and continuing down to the lowest supervision recognized as a part of that management, and approval by all concerned.
2. A clear and concise terminology of the organization breakdown established.
3. A study of job specification made.
4. Interviews of personnel starting from top or from bottom, preferably bottom, completed to get statement of duties and responsibilities.
5. Rough draft duplicated.

The information included in a manual differs, as Neumaier says, "there are probably as many styles of organization manuals as there are types of business."[19]

To determine what to include in the write-up or manual, this rule is suggested: relieve the chart of details by putting them into the

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[18] Richard Neumaier, "Writing A Simple Organization Manual," The Office 24:47-50, August 1946.

[19] Ibid., p. 47.

manual, and relieve the manual of material usually found elsewhere. Perhaps the designation of the subdivision and the title of the person in charge are sufficient. Some companies consider the name of the person in charge of sufficient importance to include in the chart. Home address and home telephone numbers should not be included, inasmuch as such information is found in the directory.

The following sections in the write-up of the department manual of the Controller's Department is suggested by Neuner and Haynes:[20]

1. Name of Department
2. General Description
3. Title of Head
4. Located at (or in)
5. General Duties of the Department
6. Specific Duties of Controller
7. Opportunities of Controller's Department
8. Subordinate Divisions of the Controller's Department

With a changing organization, the chart as well as the write-up and manual will have to be changed. Revision may be made at stated periods. Between revisions personnel should be informed by bulletins, these bulletins to be used as a basis for revision.

Chapter Summary

Organization in some degree has always characterized human endeavor.

Organization charts have had a short history. Their importance as a tool in management has become recognized because of the growth of large business enterprise. There is still opposition to their use, however,

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[20] John J. W. Neuner and Benjamin R. Haynes, Office Management and Practices (Cincinnati: South-Western Publishing Company, 1947), pp. 605-607.

especially from some of the old-line companies.

Charts give an overall graphic presentation of relationships and functions of parts in an organization. They increase the understanding of the individual employee about the organization as a whole, help disclose deficiencies in the organization structure, and aid in planning.

Nomenclature of charts refers to the structure which is the framework and designation which is the name of subdivisions. The box is the most common way to enclose subdivisions. Designations of subdivisions should be standardized. There is a direct relation between the designation of the subdivision, the title of the person in charge of it, and the level of authority.

Organizations which are too large to chart on an average size sheet of paper may correct the fault of crowding or grotesque placement by use of master and subsidiary charts. Secondary charts for the first-level operating subdivisions are usually sufficient.

The structure of lines connecting subdivisions indicate functions, and are explained in the legend.

The inverted-tree is the most commonly used type of chart. The horizontal-line chart permits compactness but sacrifices clarity. The pyramid chart lists functional regional divisions in columns, permitting compactness, but sacrifices clarity.

Write-ups or manuals define and explain duties, responsibilities, and relationships and give textual material not included on the chart.

CHAPTER IV

ORGANIZATION CHARTS AND WRITE-UP OF HYPOTHETICAL FIRM

The X Rayon Manufacturing Corporation is a hypothetical firm producing rayon and rayon products. The viscose process is used in which the pulp is shredded and treated with caustic soda to make viscose from which rayon is made.

The corporation's capitalization consists of 100,000 shares of common stock at $100 a share. The Board of Directors consists of five men.

A write-up of the authority and responsibility of management from the General Manager and above is found in the by-laws. For the purposes of this study, a write-up of the operating departments and their subdivisions is presented.

Administrative Organization

Classification of Activities. The functional method of dividing the work is used for the firm as a whole, although the sections of the Production Department are divided on a process basis.

Type of Organization. From the structure of the charts, a line organization is used. However, with the activities classed according to function, the organization becomes a line-and-functional-staff type. A functional department in this type of organization can influence other departments in an official capacity only by going through the General

Manager from whom all authority flows. Functional departments act in a staff relationship in effect.

Crosswise Relationships. Unofficial lines of communication between departments having coordinate work or problems are accomplished by use of committees. These committee relationships are explained in the write-up.

Number of Charts. The organization charts of this corporation consist of a master, secondary, and tertiary charts. In the Production Department, lower levels than foremen are not drawn. It is not within the scope of this study to establish the number of personnel, nor other detailed data such as location, telephone numbers, or names of personnel.

Duties and Authority. Inasmuch as duties become more specific as the level becomes lower, the duties of divisions and below are not divided into general and special duties. Authority lines are by heavy lines on the charts.

Nomenclature. Subdivisions and persons in charge of these subdivisions are designated as follows:

Department	Manager
Division	Superintendent
Section	Head

Numerals and letters on the write-up refer to parts of the charts.

Chart Number 1

Name of Department: Industrial Relations.

General Description: The Industrial Relations Department has charge of those functions which have to do with relationships between employer and employee, and between the employer and the public. The object of industrial relations work is to build up and maintain a stable, loyal, and efficient working force, and to build and maintain good-will.

Title of Head: Industrial Relations Manager.

General Duties of the Industrial Relations Department:

1. To cooperate and assist all other subdivisions which have functional relationships with, or receive assistance from the Industrial Relations Department.
2. To furnish personnel to serve on the Worker's Qualification and Training Committee.

Special Duties of the Industrial Relations Department:

1. To set up and maintain adequate employment practices.
2. To institute and carry out sound labor policies.
3. To institute and carry out effective personnel methods.
4. To establish means of maintaining good public relations.
5. To establish and maintain the welfare of all employees.
6. To establish and maintain means of training and promotion of employees.
7. To provide for plant safety.

Immediate Superior to Whom Responsible: General Manager.

Subordinate Subdivisions:

1. Public Relations Division.

2. Employment Division.
3. Training Division.
4. Health and Safety Division.
5. Labor Relations Division.
6. Employee Services Division.
7. Plant Security Division.

Write-Up of Subordinate Divisions

Chart Number 1A

Name of Division: Public Relations.

Title of Head: Superintendent.

Duties of the Public Relations Department.

1. To maintain contacts between the company and stockholders; between the company and local, state, and national governments; and between the company and customers.
2. To act as interpreters and disseminators of information to and from those groups.
3. To educate company officials on public demands, and interpret company policies to those groups.
4. To study the company's interests in the light of the trends in public progress.

Immediate Superior to Whom Responsible: Industrial Relations Manager.

Chart Number 1B

Name of Division: Employment.

Title of Head: Superintendent.

Duties of the Employment Division:

1. To keep informed on the labor market and sources of supply.
2. To keep informed on potential requirements of all departments of the company.
3. To select employees who have suitable attitudes, character, technical ability, and other qualifications for the jobs to be filled.
4. To follow up new employees, and provide means of counseling and interviewing.
5. To provide means for all types of testing.
6. To furnish information and assistance to any persons in other subdivisions who require them.
7. To cooperate and discuss any problems concerning employment with persons in other subdivisions.
8. To provide exit interviews to discover reason for leaving.
9. To maintain all necessary employment records including applications, qualification cards, and merit rating reports.
10. To compile and maintain records of absenteeism and tardiness.
11. To maintain a record of labor turnover.
12. To place all employees.

Immediate Superior to Whom Responsible: Industrial Relations Manager.

Chart Number 10

Name of Division: Training.

Title of Head: Superintendent

Duties of the Training Division:

1. To provide general training on the policies and regulations of the company for new employees.
2. To provide general training in cooperation with the Health and Safety Division in hygiene and safety.
3. To determine course content and methods of training through job analysis, job description, job specification, and job evaluation.
4. To provide on-the-job-training and maintain the company school.
5. To provide training and merit rating for transfers and promotions.
6. To cooperate with outside training agencies.

Immediate Superior to Whom Responsible: Industrial Relations Manager.

Chart Number 1D

Name of Division: Health and Safety.

Title of Head: Health and Safety Superintendent.

Duties of the Health and Safety Division:

1. To recommend standards for physical fitness of workers.
2. To give physical examinations to applicants, to re-examine workers exposed to industrial hazards, to give defective eye examinations.
3. To be cognisant of the employees' health on and off the job.
4. To take measures in the prevention of communicable diseases, epidemics, industrial disease hazards, special strains of industry, fatigue, and mental fatigue.

Immediate Superior to Whom Responsible: Industrial Relations Manager.

Chart Number 1E

Name of Division: Labor Relations.

Title of Head: Labor Relations Superintendent.

Duties of the Labor Relations Division:

1. To provide for means and coordination of collective bargaining.
2. To prepare policy manuals and bulletins relative to collective bargaining.
3. To assist in the interpretation of labor policy.
4. To establish uniform rules relating to discipline.
5. To compile company rules and regulations.
6. To receive, investigate, and hear grievances.
7. To make a periodic audit and diagnosis of the effectiveness of company-wide industrial relations program.
8. To make basic research into social problems of industrial relations.
9. To establish wage determination plans and incentives.
10. To make promotions in cooperation with the Employment and Training Divisions.

Immediate Superior to Whom Responsible: Industrial Relations Manager.

Chart Number 1F

Name of Division: Employee Services.

Title of Head: Employee Services Superintendent.

Duties of the Employee Services Division:

1. To give recommendations on benefit and insurance plans.
2. To provide general employee counseling.
3. To cooperate with civic agencies on recreation and welfare.

4. To organize and direct recreational programs.
5. To publish the employee magazine and newspaper.
6. To organize suggestion committees.
7. To maintain employee washrooms and the cafeteria.
8. To provide refreshments during rest periods.
9. To determine proper work hours and rest periods in cooperation with the job analysis section of the Training Division.
10. To make motion study from the viewpoint of the individual's health.
11. To make systematic plant inspection by safety men.
12. To insure the proper control of mechanical and personal safety devices.
13. To insure accident control and reduction following best building practices, complying with industrial commission codes, safeguarding hazards; safety education; follow-up on industrial accidents.
14. To cooperate with all authorities in reporting accidents.
15. To assist in compensation payments in cooperation with the Finance Department.
16. To correct fire hazards.
17. To provide systematic check-ups of all work conditions.
18. To cooperate or assist other subdivisions in cleaning; ventilating and humidity; lighting-heating; washing-bathing facilities; toilet equipment; dressing rooms; lockers; and drinking water.

Immediate Superior to Whom Responsible: Industrial Relations Manager.

Chart Number 10

Name of Division: Plant Security.

Title of Head: Plant Security Superintendent.

Duties of the Plant Security Division:

1. To provide for traffic control, the watch, and the guard.
2. To establish rules and regulations relative to plant security.
3. To establish rules and regulations governing personnel in Plant Security.

Immediate Superior to Whom Responsible: Industrial Relations Manager.

Chart Number 2

Name of Department: Chemical Laboratory.

General Description: Included under duties.

Title of Head: Chemical Laboratory Manager.

General Duties of the Chemical Laboratory Department:

1. To analyze all raw materials, chemicals in process, and products to determine their conformity to established standards.
2. To cooperate and advise the Research Department in regard to the chemical research phase of the Research Department's activities. This procedure is established for the primary purpose of eliminating duplicate activities with the two departments.

Special Duties of the Chemical Laboratory Department: These are the special duties of the divisions.

1. To make raw materials analyses.
2. To make process analyses.
3. To make product chemical analyses.

Staff Relationship: Clerical Staff reporting to Chemical Laboratory Manager.

Chart Number 3.

Name of Department: Research.

General Description: The Research Department is organized on the basis of research techniques rather than on a departmental production basis. This type of organization permits the elimination of duplicate research personnel, duplicate research equipment, and provides an overall research approach to all research problems rather than confining the research personnel to specific assigned research projects.

Title of Head: Research Manager.

General Duties of the Research Department:

1. To furnish personnel to serve on the Products Methods and Improvement Committee and Product Development Committee.
2. To conduct research on possible additional uses for the products manufactured by the corporation.
3. To have general supervision over engineering research in regard to new methods and new mechanical equipment.
4. To cooperate closely with the Chemical Laboratory and to carry on "pilot plant" experiments in regard to production methods.
5. To conduct experiments in regard to the attainment of product standards such as yarn elasticity, breaking point tests, durability, dyeing, and similar activities.

Special Duties of the Research Department:

1. To carry on general research.

2. To carry on engineering research.

3. To carry on chemical research.

4. To carry on Textile Product Standards Research.

Immediate Superior to Whom Responsible: General Manager.

Chart Number 4

Name of Department: Production.

General Description: The Production Department is responsible for product development, product and plant engineering, and layout together with the actual production operation of the entire firm. A firm in the rayon industry finds its productive effort divided logically into two main phases. First, the chemical division which converts the basic raw materials into rayon yarn, and the textile division which processes this yarn into various intermediate or finished products. For proper coordination of the productive effort it is deemed advisable to also place the mechanical and traffic and materials divisions under the direct supervision of production.

Title of Head: Production Manager.

General Duties of Production Manager:

1. To coordinate the efforts of all divisions both staff and line dealing with research engineering and planning, traffic and materials control, mechanical, service, and actual production.
2. To give general supervision to the research staff in regard to product development, simplification, diversification, and standardization.
3. To give general supervision to the engineering and planning

staff in getting the product into production and such related matters as plant layout, mechanical equipment, and product specification.

4. To give general supervision to the clerical staff in maintaining adequate records for the proper measurement of production performance.
5. To give general supervision to the two main production divisions of the firm.
6. To coordinate the activities of the two production service divisions (mechanical and traffic).
7. To furnish personnel to serve on the following committees: Workers' Qualification and Training, Equipment, and Product Development.

Specific Duties of the Production Manager:

1. To serve as an ex officio member of the following committees: Equipment, Production Methods and Improvement, Workers' Qualification and Training, and Product Development.
2. To be responsible for carrying out all general duties of the department.
3. To have full authority and responsibility for all productive operations of the firm.
4. To consult and advise with management.
5. To have final approval for the recruitment and employment of all productive division superintendents and section heads.
6. To supply management with all required records on production maintenance and materials.

Immediate Superior to Whom Responsible: General Manager.

Subordinate Divisions:

1. Staff relations.
    a. Research.
    b. Engineering and Planning.
    c. Clerical.
2. Chemical Division.
3. Textile Division.
4. Mechanical Division.
5. Traffic and Materials Division.

Chart Number 4

Name of Staff: Research.

Title of Head: Director.

General Duties of the Research Director:

1. Serve as an ex officio member of the product development committee and product methods and improvement committee.
2. To assign all research products to research staff employees and to coordinate all research activities.
3. To cooperate with the Production Manager and Controller in the determination of the research budget.
4. To familiarize himself continually with all developments in the rayon industry with regard to product development and improvement.

Specific Duties of the Research Director:

1. To have final authority in the recruitment and selection of all

research personnal above the level of general laboratory assistants.

2. To designate research staff members to be responsible for assigned research projects.
3. To require the submission of complete reports on research progress, and to review carefully such reports.
4. To submit periodical progress reports to the Production Manager.
5. To work closely with the Director of Engineering and Planning in regard to the placing and production of new products developed.

Responsibility: Responsible directly to the Production Manager in a functional-staff relationship.

Chart Number 4

Name of Staff: Engineering and Planning.

Title of Head: Director.

Duties of Director:

1. To assist and advise the Production Manager in the performance of Production Manager's general and specific duties.
2. To seek continually a better way for materials routing, scheduling, and handling, and to have general supervision over these activities at all times.
3. To be responsible for the development of all aids requisite to production such as drawing, prints, models, etc.
4. To select the machinery and equipment to be used in production, and to place such machinery in its proper sequence.

5. To design and produce the necessary tools, jobs, dies, and other necessary mechanical equipment necessary for manufacturing the product.

Responsibility: Responsible directly to the Production Manager in a functional-staff relationship.

Chart Number 4

Name of Staff: Clerical.

Title of Head: Office Supervisor.

Duties of Office Supervisor:

1. To work in cooperation with the Production Manager to ascertain the required production records.
2. To devise ways and means of obtaining from the production divisions and sections the desired production information.
3. To have general supervision over the clerical employees in the production department.
4. To assign stenographers to the various staff and division groups within the Production Department.

Responsibility: Responsible directly to the Production Manager in a functional-staff relationship.

Chart Number 4A

Name of Division: Mechanical and Service.

Title of Head: Superintendent.

Duties of the Superintendent:

1. To coordinate the activities of the Maintenance, Power Plant, and Plant Production Sections as required by the Production

Manager.

2. To have final authority in the recruitment and hiring of the Master Mechanic, the head of the Power Plant, and the Fire Chief.
3. To delegate authority and responsibility to the section heads for the requisitioning of the necessary materials and supplies.
4. To require all section heads in the division to maintain adequate and accurate job cost analyses.
5. To consult with the Purchasing Agent in regard to the procurement of materials and supplies.
6. To be responsible for the security of all tools, equipment, materials, and supplies.
7. To inspect periodically the entire plant facilities.

Immediate Superior to Whom Responsible: Production Manager.

Charts Number 4E through 4H

Name of Division: Traffic and Materials.

Title of Head: Superintendent.

Duties of the Superintendent:

1. To be responsible for the receipt and storage of raw materials and supplies until such materials and supplies are requisitioned by authorized personnel.
2. To receive and place in temporary storage all finished goods.
3. To remove finished goods from temporary storage and ship upon receipt of authorization from the Sales Manager.
4. To furnish adequate reports to the Purchasing Department covering the receipt of all materials.

5. To inspect all incoming materials for both quantity and quality.
6. To file damage claims for breakage, damage, and shortages with the transportation companies.
7. To maintain working relationships with all common carriers serving the firm.
8. To audit all transportation company invoices both for mathematical computation and proper rate classification.

Immediate Superior to Whom Responsible: Production Manager.

Charts Number 4B through 4G

Name of Division: Chemical.

Title of Head: Superintendent.

Duties of the Superintendent:

1. To receive and analyze all work orders from the Production Manager.
2. To convert the Production Manager's assigned quotas into material requirements.
3. To requisition the necessary raw materials and supplies from the stores section.
4. To provide for transporting the raw materials or supplies from the stores to the proper work areas.
5. To assign all work to the machines and to the workers as specified by the Engineering and Planning Staff.
6. To take constant chemical analyses of all operations from the receipt of raw materials through the various division operations.

7. To provide adequate inspection personnel to insure that all spool yard leaving the department is of the required quality.
8. To coordinate the activities of the three divisions sections (Chemical Mixing, Spinning, and Washing).

Immediate Superior to Whom Responsible: Production Manager.

Charts Number 4I through 4P

Name of Division: Textile.

Title of Head: Superintendent.

Duties of the Superintendent:

1. To receive and analyse all work orders from the Production Manager.
2. To convert the Production Manager's assigned quotas into material requirements.
3. To requisition the necessary raw materials from the Chemical Division.
4. To provide for transporting the raw materials or supplies from the stores to the proper work areas.
5. To assign all work to the machines and to the workers as specified by the Engineering and Planning Staff.
6. To take constant observation of all operation from the receipt of raw materials through the various division operations.
7. To provide adequate inspection personnel to insure that all work leaving the department is of the required quality.
8. To coordinate the activities of the nine division sections.

Immediate Superior to Whom Responsible: Production Manager.

Chart Number 5

Name of Department: Purchasing.

General Description: The Purchasing Department is responsible for procurement of all necessary materials, supplies, and equipment.

Title of Head: Purchasing Agent.

General Duties of the Department:

1. To act for the company in all transactions relative to procurement of materials, equipment and supplies.
2. To maintain records of all kinds that are necessary for the efficiency of the organization.
3. To coordinate the activities of all subordinates.
4. To furnish personnel to serve on the Equipment Committee.

Specific Duties:

1. To know and maintain records showing possible materials and substitutes, sources of supply, prices, and quantities available.
2. To review specifications for possible simplification and standardization of materials or for unreasonable requirements.
3. To negotiate with vendors.
4. To accumulate and analyze quotations.
5. To place purchase orders with vendors.
6. To follow up purchase orders for delivery as specified.
7. To audit invoices to check compliance with agreed terms.
8. To maintain records of all purchases.
9. To coordinate with other departments on all matters pertaining to procurement.

Immediate Superior to Whom Responsible: General Manager.

Subordinate divisions:

1. Assistant Purchasing Agent for Office Supplies and Maintenance.
2. Assistant Purchasing Agent for Raw Materials.
3. Assistant Purchasing Agent for Tools and Equipment.

Duties of Subordinate Divisions: To perform duties similar to the duties of the Purchasing Agent in their special function.

Chart Number 6

Name of Department: Finance.

General Description: The Finance Department is responsible for the records and reports of internal finances, and for office services. The Controller is in a strategic position as his work keeps him in close contact with every department of the business. His department clears every record of importance, compiles the necessary data and gets out the reports which will show to the management the true status of operations and act as a foundation upon which the management can base its plan of action. The Controller is directly responsible for the accuracy and scope of the information covered. He must see, therefore, that proper standards are developed and established and records kept so as to supply the information needed in compiling the required reports.

Title of Head: Controller.

General Duties of the Department:[1]

1. To act for the company in all transactions relative to finances.
2. To maintain records of costs of all kinds that are necessary for the efficiency of the organization.
3. To furnish to those entitled to receive them, all costs and other reports which will be of practical use in the conduct of their responsibilities.
4. To compile at stated intervals the various financial statements.

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[1] Adapted from John J. W. Neuner and Benjamin R. Haynes, Office Management and Practices (Cincinnati: South-Western Publishing Company, 1946), p. 606.

5. To specify in clearly stated instructions all kinds of necessary office procedure in all offices of the company.
6. To recommend and approve all operating salaries and wage rates.
7. To act as a clearinghouse for reports of all activities through the entire business.
8. To keep a file of all reports.
9. To keep a file of all correspondence relative to these reports.
10. To furnish personnel for necessary committees.

Specific Duties of the Controller:[2]

1. To be responsible for carrying out all general duties of the department.
2. To consult and advise with management and other officials of the company.
3. To keep in close contact constantly with all methods used in office routine, machines in offices, and like matters.
4. To decide as to methods by which all data and reports are to be collected.
5. To decide what financial relationships are necessary for control and then to set up standards for each of these ratios.
6. To develop a proper balance of system and record keeping.
7. To follow up reports that he gives to other executives to see that they are properly used.
8. To be in charge of all clerical help.

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[2] Loc. cit.

Immediate Superior to Whom Responsible: General Manager.

Subordinate divisions:

1. Staff relationships.
    a. Cost Reduction.
    b. Auditing.
2. Factory Accounting Division.
3. General Accounting Division.
4. Office Services Division.

Chart Number 6

Name of Staff: Auditing.

Title of Head: Auditor.

Duties of the Auditor:

1. To assist and advise the Controller in the performance of the Controller's general and special duties.
2. To give constant review of factory performance standards.

Responsibility: Responsible to the Controller in a staff relationship.

Chart Number 6A

Name of Division: General Accounting.

Title of Head: General Accounting Superintendent.

Duties of the General Accounting Superintendent:

1. To assist the Controller in the performance of the Controller's general and special duties.
2. To maintain all payroll records.
3. To file tax schedules and returns on personal property, real estate, and income.

4. To maintain records of cash receipts and disbursements.

5. To maintain records of accounts receivable and accounts payable.

6. To prepare financial and cash requirements budgets.

7. To audit invoices.

8. To maintain records of assets and depreciation.

9. To maintain a perpetual inventory of stores.

10. To prepare accounting reports and statements.

11. To maintain all other general ledger accounts.

Immediate Supervisor to Whom Responsible: Controller.

Chart Number 6B

Name of Division: Factory Accounting.

Title of Head: Factory Accounting Superintendent.

Duties of the Factory Accounting Division:

1. To assist the Controller in the performance of the Controller's general and special duties.

2. To maintain all cost accounting records and prepare all cost accounting reports.

3. To maintain all material records and method of accounting for factory materials.

4. To maintain all factory supplies records and method of accounting for factory supplies.

5. To maintain a production record.

6. To maintain a statistical record and collect data relative to factory accounting.

7. To maintain a factory record.

8. To maintain all labor and burden records.
9. To supervise and coordinate the activities of accountants and clerks.

Immediate Superior to Whom Responsible: Controller.

Chart Number 6C

Name of Division: Office Services.

Title of Head: Superintendent.

Duties of Office Services Superintendent:

1. To cooperate with the Employment Division of Industrial Relations in the employment of office personnel.
2. To act as a functional division in determining office routines, methods, and layouts for offices in other subdivisions.
3. To cooperate with the Training Division in the training of all office personnel.
4. To cooperate with the Labor Relations Division of Industrial Relations Department in determining wage scales and incentives for office employees.
5. To cooperate with all over subdivisions in regard to relations of office employees.
6. To provide for general correspondence including stationery and forms, stenographers, typists, and office boys.
7. To maintain the general files and to be responsible for the storage and destruction of records.
8. To provide for all physical equipment in cooperation with the Purchasing Department.

9. To provide for all internal communication including telephone, mail, information.

Immediate Superior to Whom Responsible: Controller.

Chart Number 7

Name of Department: Sales.

General Description: In a broad sense the field of the Sales Department may be construed to include the selection of the proper channels of distribution, advertising and sales promotion work, as well as the selection and training of salesmen and the actual selling of goods.

Title of Head: Sales Manager.

General Duties of the Sales Department:

1. To conduct the affairs of the Sales Department so that sales effort is coordinated with the efforts of other departments, especially the Production Department and the Controller's Department.
2. To keep in close touch with the activities of other departments.
   a. To work in close harmony with the Controller's Department, as ordinarily the income of the company is derived from sales and conversely sales plans depend to a considerable extent upon the financial condition of the company.
   b. To work in close harmony with the Production Department. To recommend certain lines to be dropped. To recommend increased manufacturing facilities to meet growing demands. To push sales on slow moving finished stock. To endeavor to offset seasonal variations.

3. To get out the sales budget.

4. To coordinate the activities of and have general supervision over subordinates.

5. To furnish personnel for necessary committees.

Specific Duties of the Sales Department:

1. To determine the sales channels to be used in the distribution of the product.

2. To determine the territory to be covered.

3. To prepare price lists and a scale of discounts.

4. To analyze the sale outlook as reflected in reports of sales volume, reports of stock turnover and loss and gain on important items, reports of competition met, general market conditions.

Immediate Superior to Whom Responsible: General Manager.

Subordinate divisions:

1. Sales Statistician Division.

2. Inquiries and Orders Division.

3. Credits and Collections Division.

4. Advertising Division.

5. Manufacturer's Sales Division.

6. Market Research Division.

Chart Number 7A

Name of Division: Sales Statistician.

Title of Head: Superintendent.

Duties of Sales Statistician Division:

1. To recapitulate all statistics.

2. To take control of all records and prepare all reports needed by

the Sales Department, but not prepared by other divisions.

Immediate Superior to Whom Responsible: Sales Manager.

Chart Number 7B

Name of Division: Inquiries and Orders.

Title of Head: Superintendent.

Duties of the Inquiries and Orders Division:

1. To receive and interpret orders.
2. To answer all inquiries from customers and potential customers.
3. To file and bill orders.
4. To work in close cooperation with the Shipping Section of the Production Department.
5. To bring about means of increasing the size of orders.
6. To bring about means of lowering the cost of handling orders.

Immediate Superior to Whom Responsible: Sales Manager.

Chart Number 7C

Name of Division: Credits and Collections.

Title of Head: Superintendent.

Duties of the Credits and Collections Division:

1. To investigate and pass upon credit rating or standing of every charge customer.
2. To take such steps as are necessary in order to obtain payment by customers of their bills when they are due.
3. To work in close harmony with other divisions of the Sales Department.
4. To work in close cooperation with the Controller's Department.

Immediate Superior to Whom Responsible: Sales Manager.

Chart Number 7D

Name of Division: Advertising.

Title of Head: Superintendent.

Duties of the Advertising Division:

1. To obtain immediate orders.
2. To introduce new products to the public.
3. To educate the public in the use of products.
4. To create good-will.
5. To keep up the demand for standard products by keeping the product before the eyes of the public.
6. To meet competition.
7. To determine the appropriation for advertising.
8. To determine the media to be employed.
9. To determine character and type of copy.
10. To decide whether or not outside agencies will be used.
11. To determine scope of advertising.

Immediate Superior to Whom Responsible: Sales Manager.

Chart Number 7E

Name of Division: Manufacturing Sales.

Title of Head: Superintendent.

Duties of Manufacturer's Sales Division:

1. To select and train salesmen in cooperation with the Employment and Training Divisions of the Industrial Relations Department.

2. To prepare and check sales quotas for each salesman.
3. To standardize selling methods.
4. To study the possibilities of new selling fields and of more intensive selling in present fields.
5. To check on expenses of salesmen and to strive to reduce all selling expenses without injury to sales work.

Immediate Superior to Whom Responsible: Sales Manager.

Chart Number 7F

Name of Division: Market Research.

Title of Head: Superintendent.

Duties of the Market Research Division:

1. To provide an organized and skilled method of driving for answers to current sales problems.
2. To propose policies bearing upon both current and long-range needs, together with ways and means of coping with them.
3. To provide a definite method of turning into account proposals of the Sales Manager.

Immediate Superior to Whom Responsible: Sales Manager.

ORGANIZATION CHART
X RAYON MFG. CORP.

Approved as of July 1, 1947

President

LEGEND:
Heavy Lines: Authority.
Broken Lines: Crosswise relations through committees.
Arabic Numerals: See subsidiary charts.

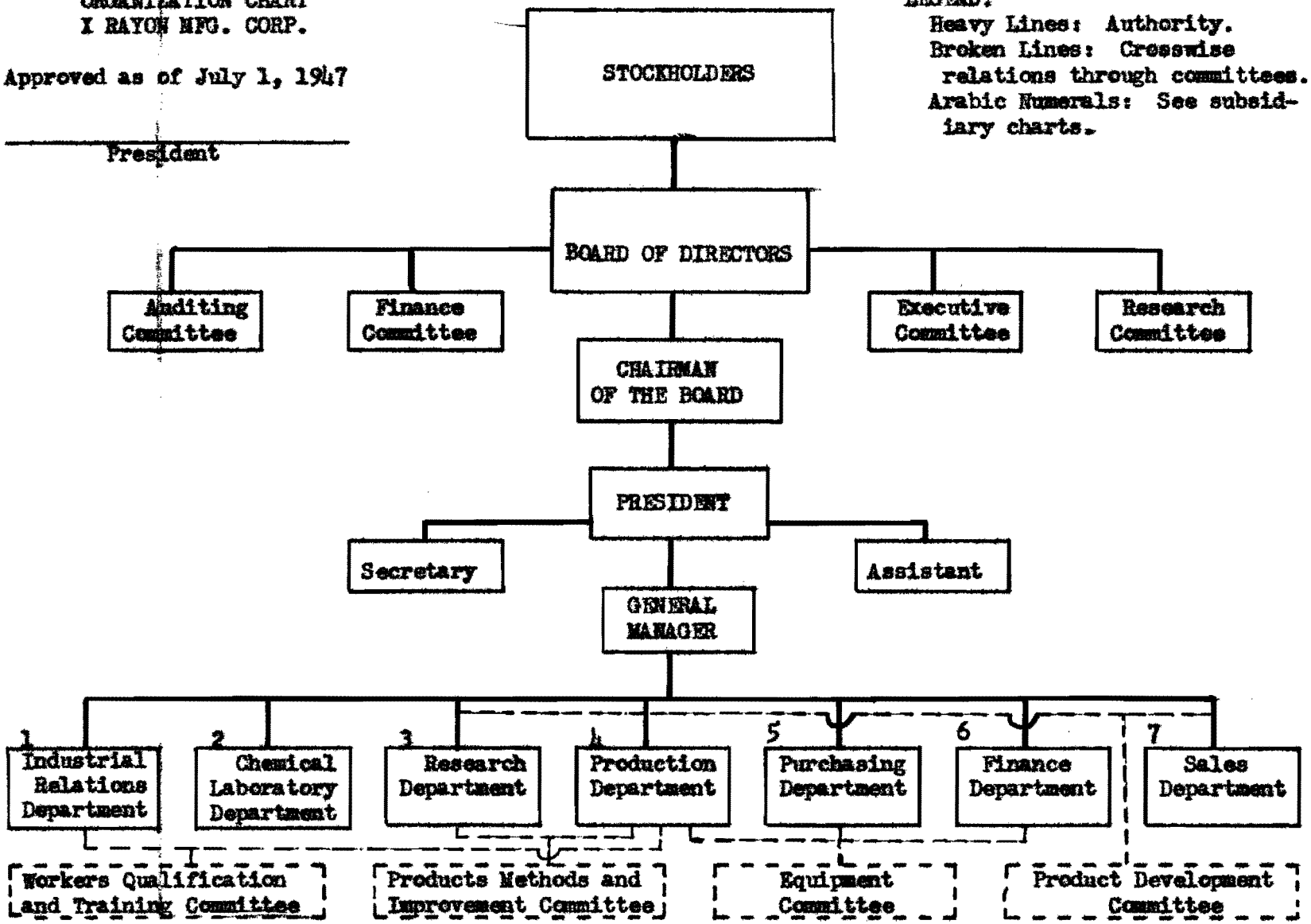


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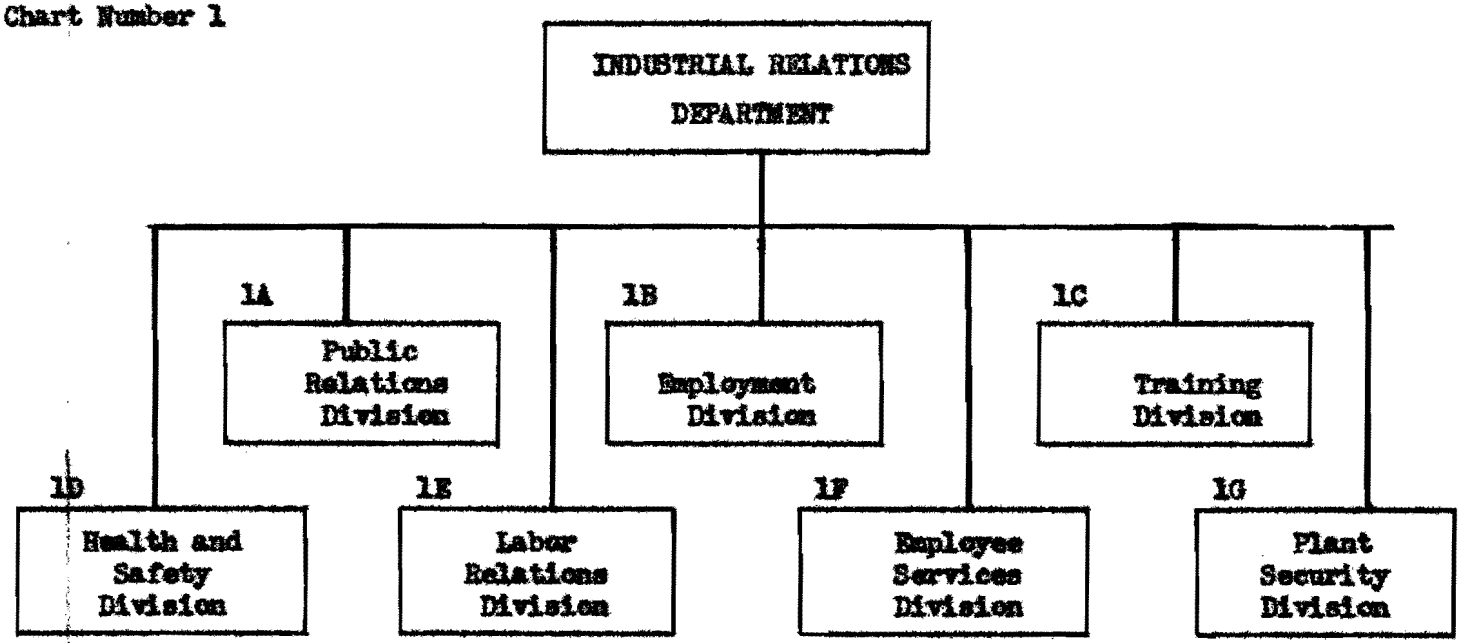


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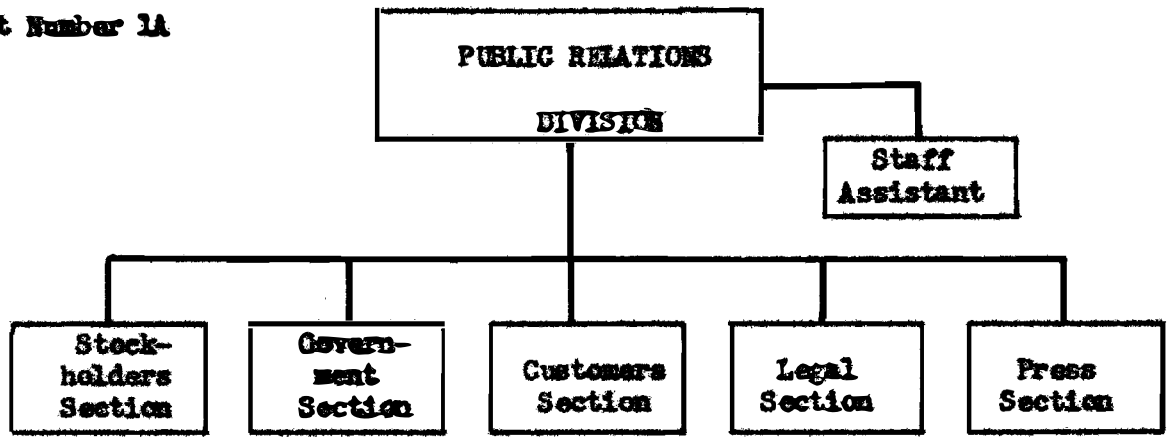


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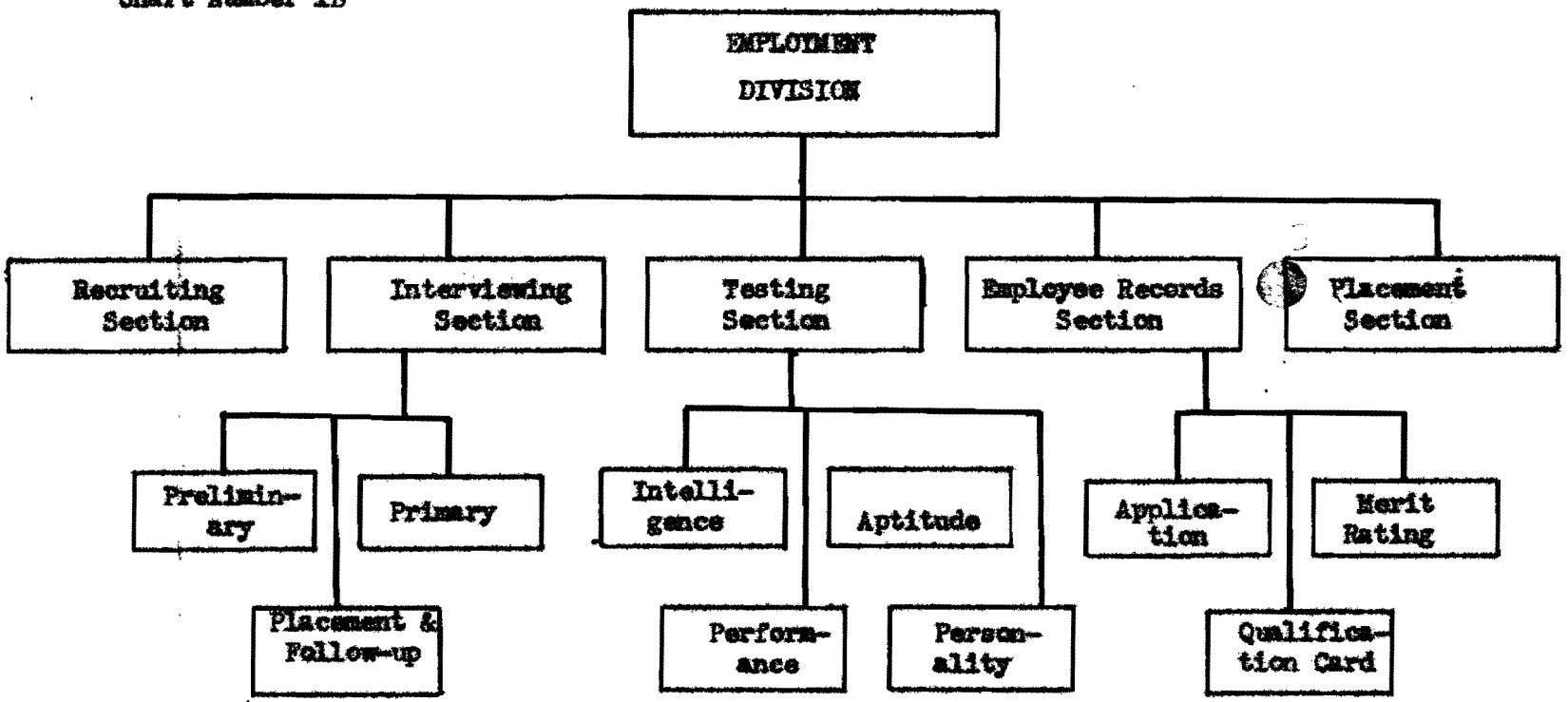


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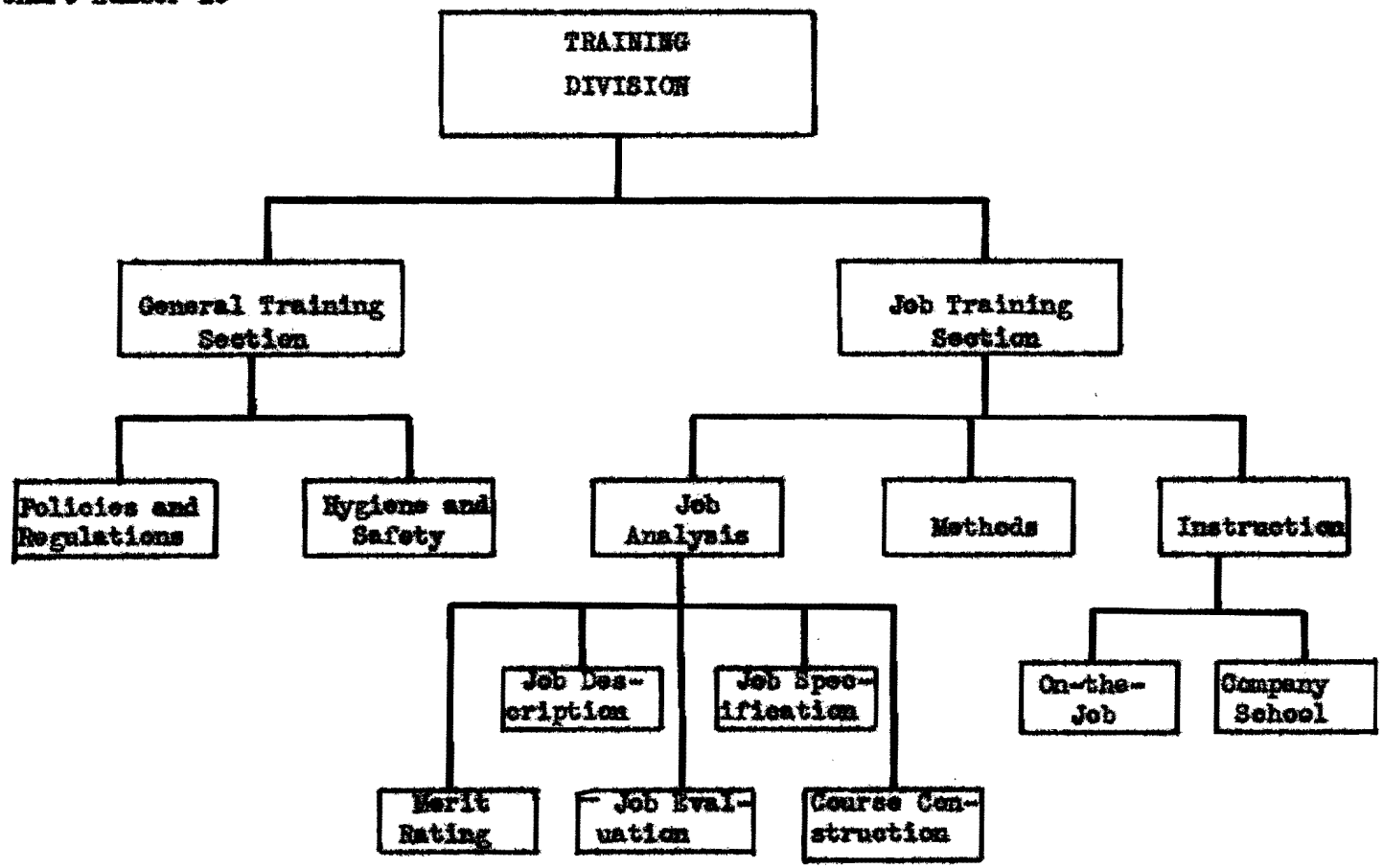


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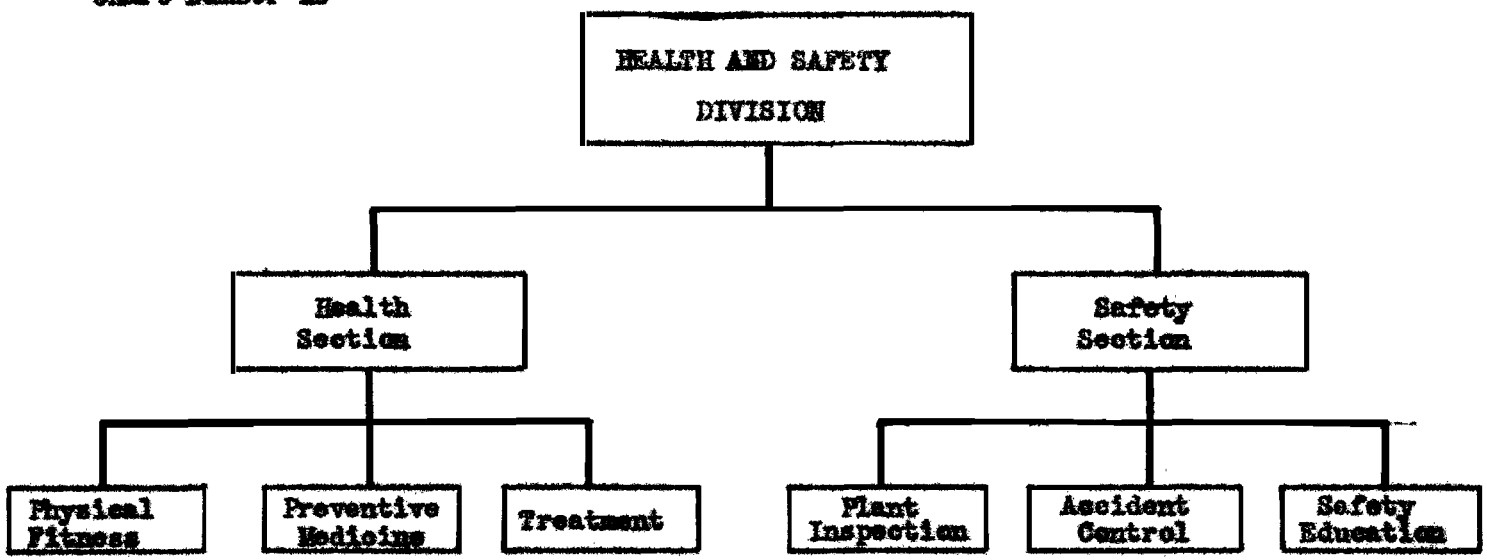


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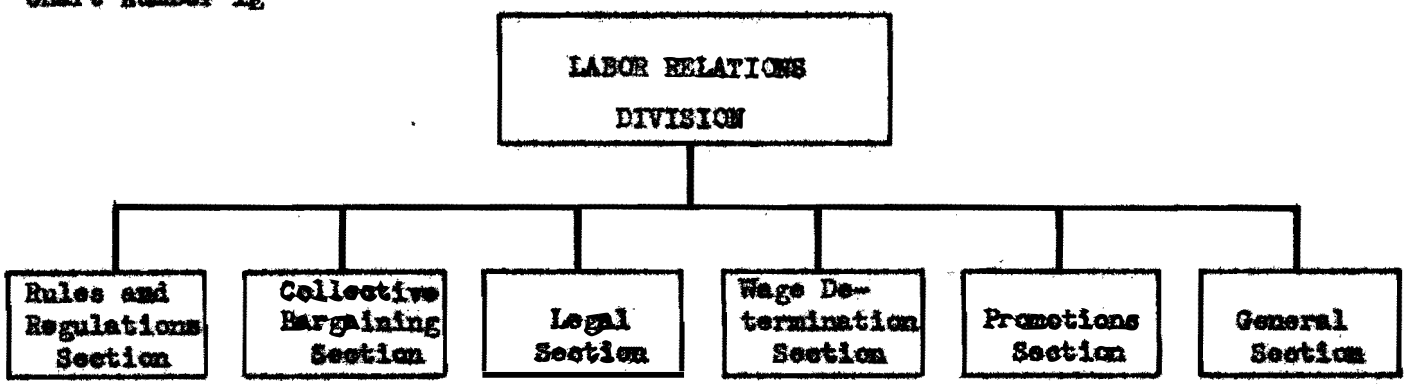


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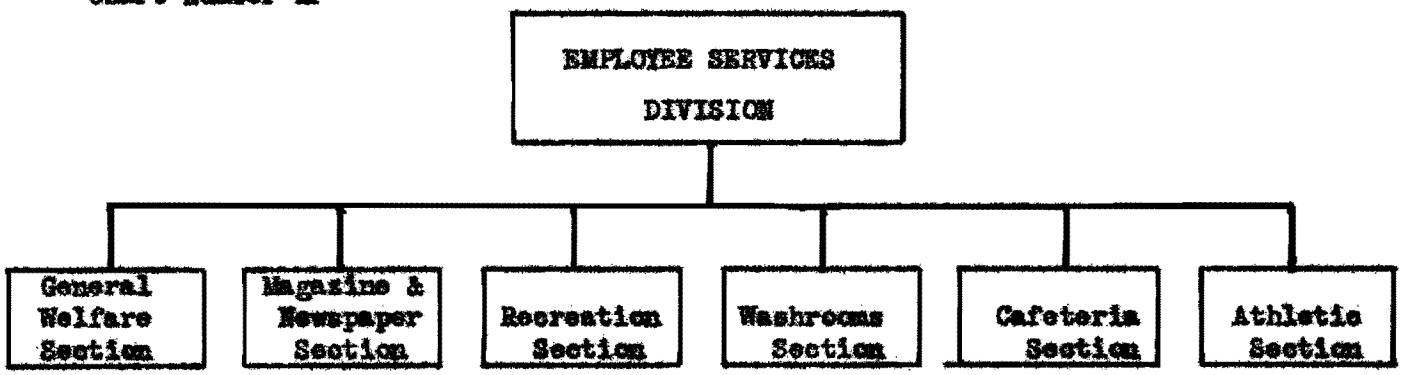


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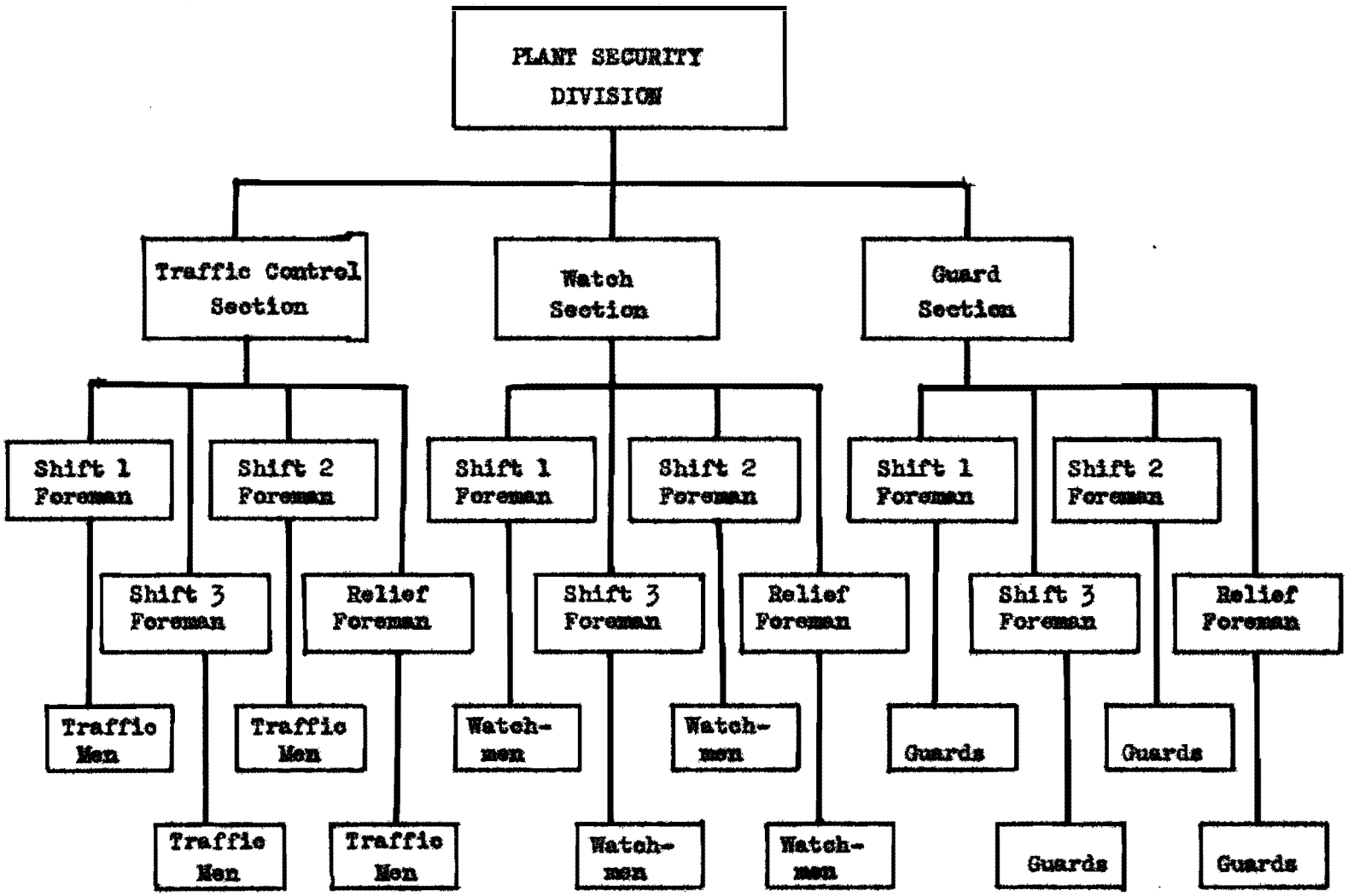


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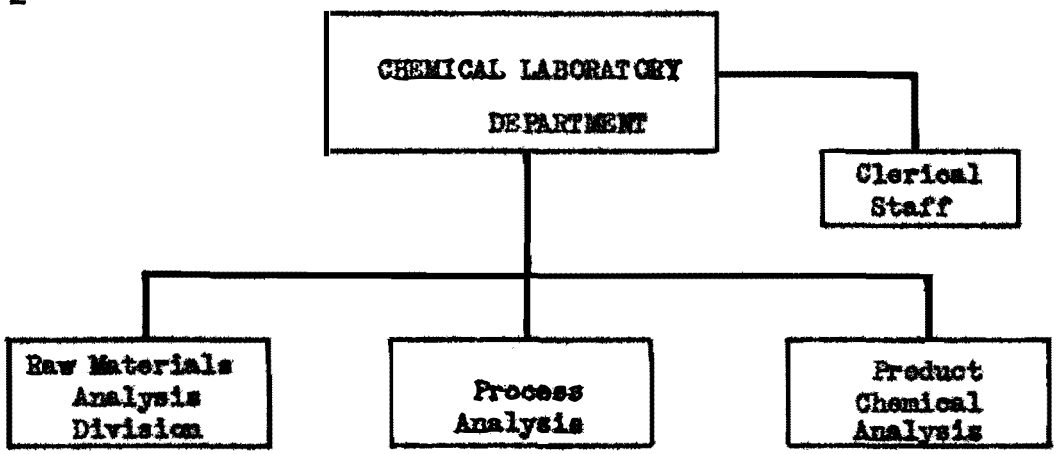


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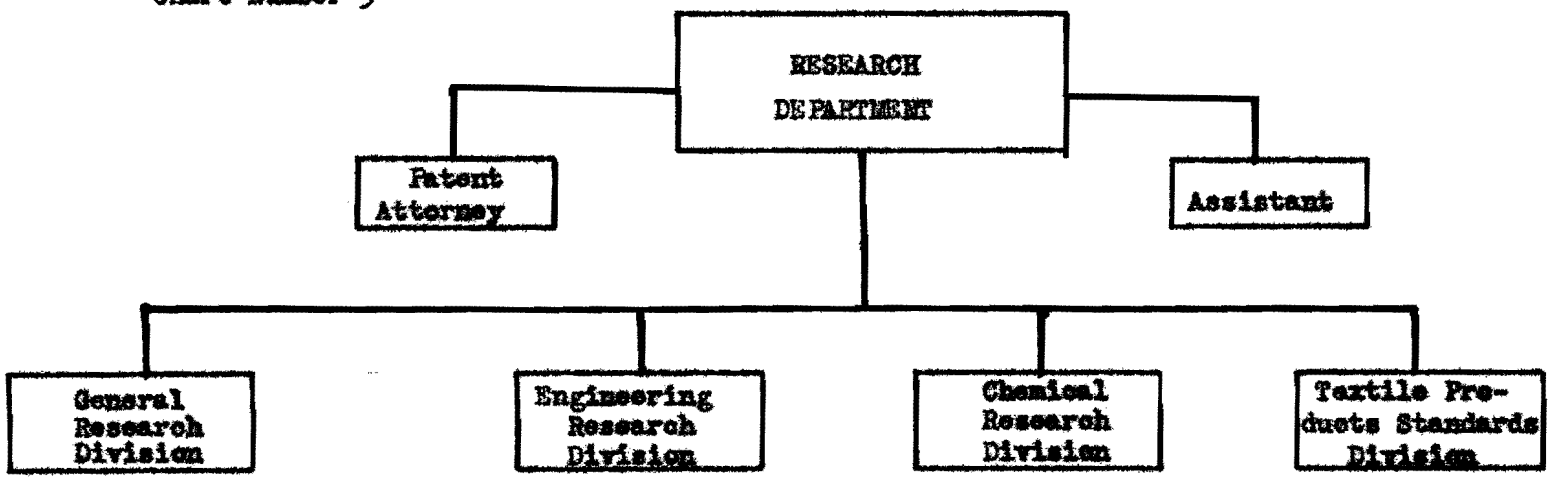


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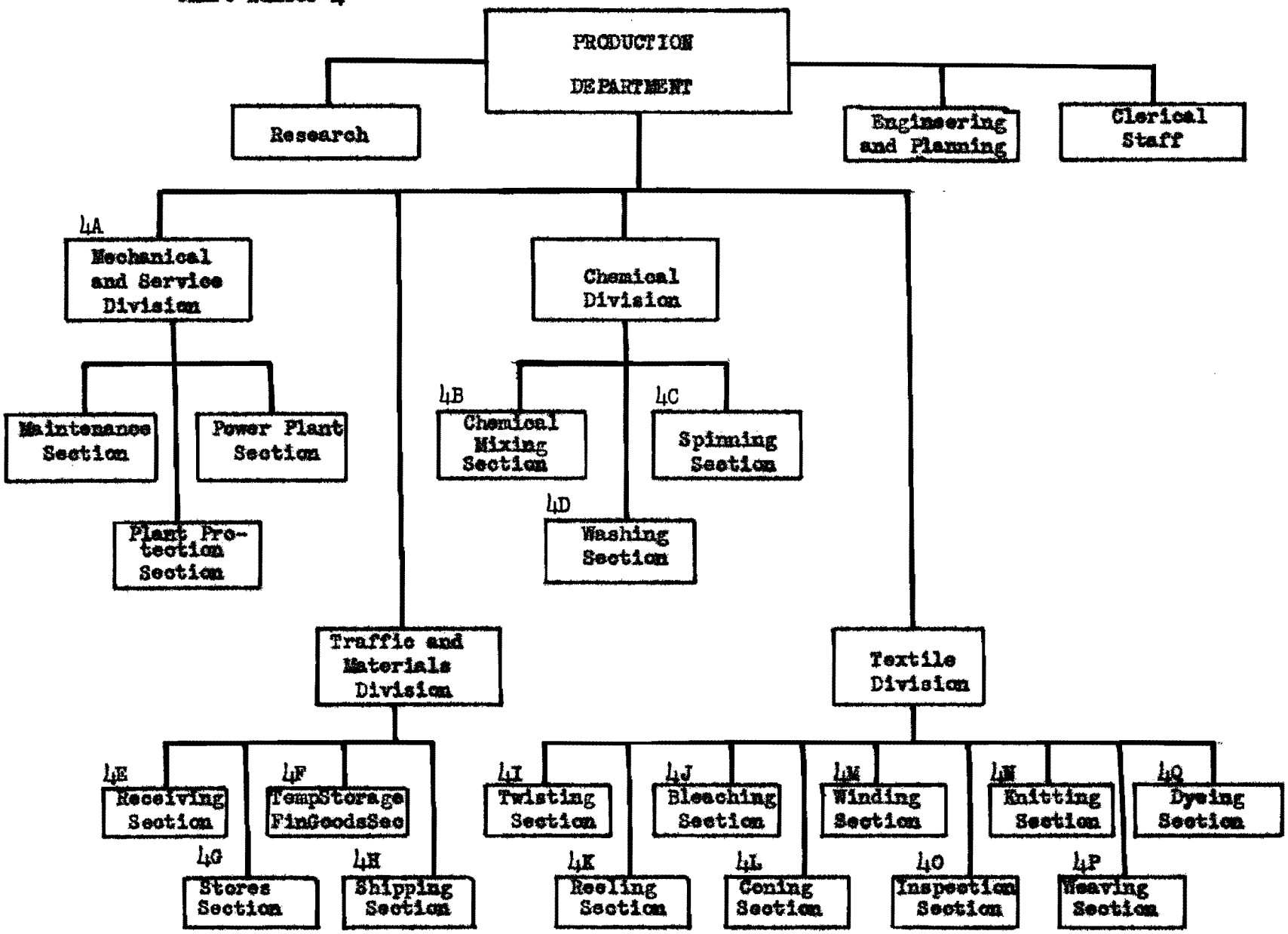


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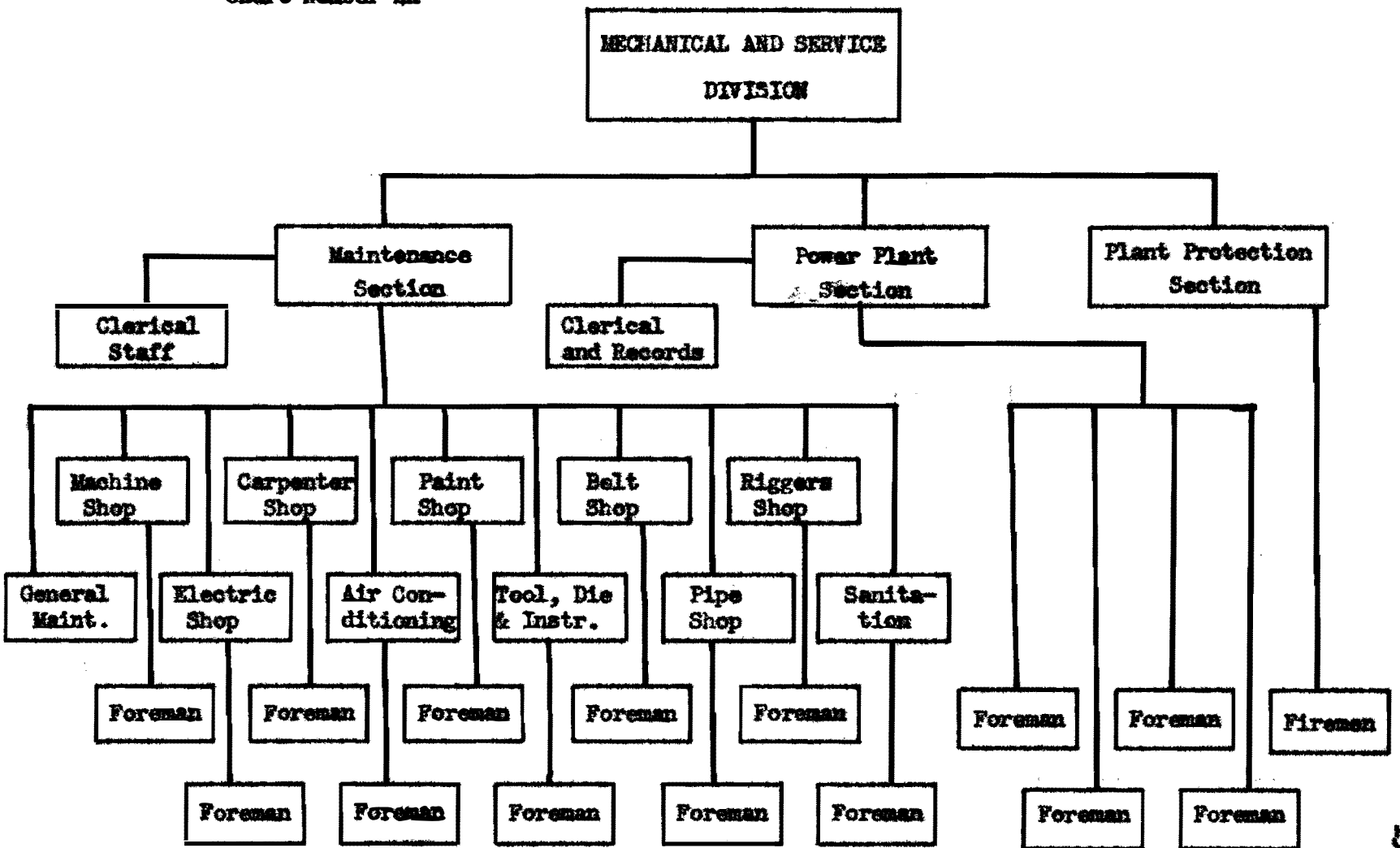


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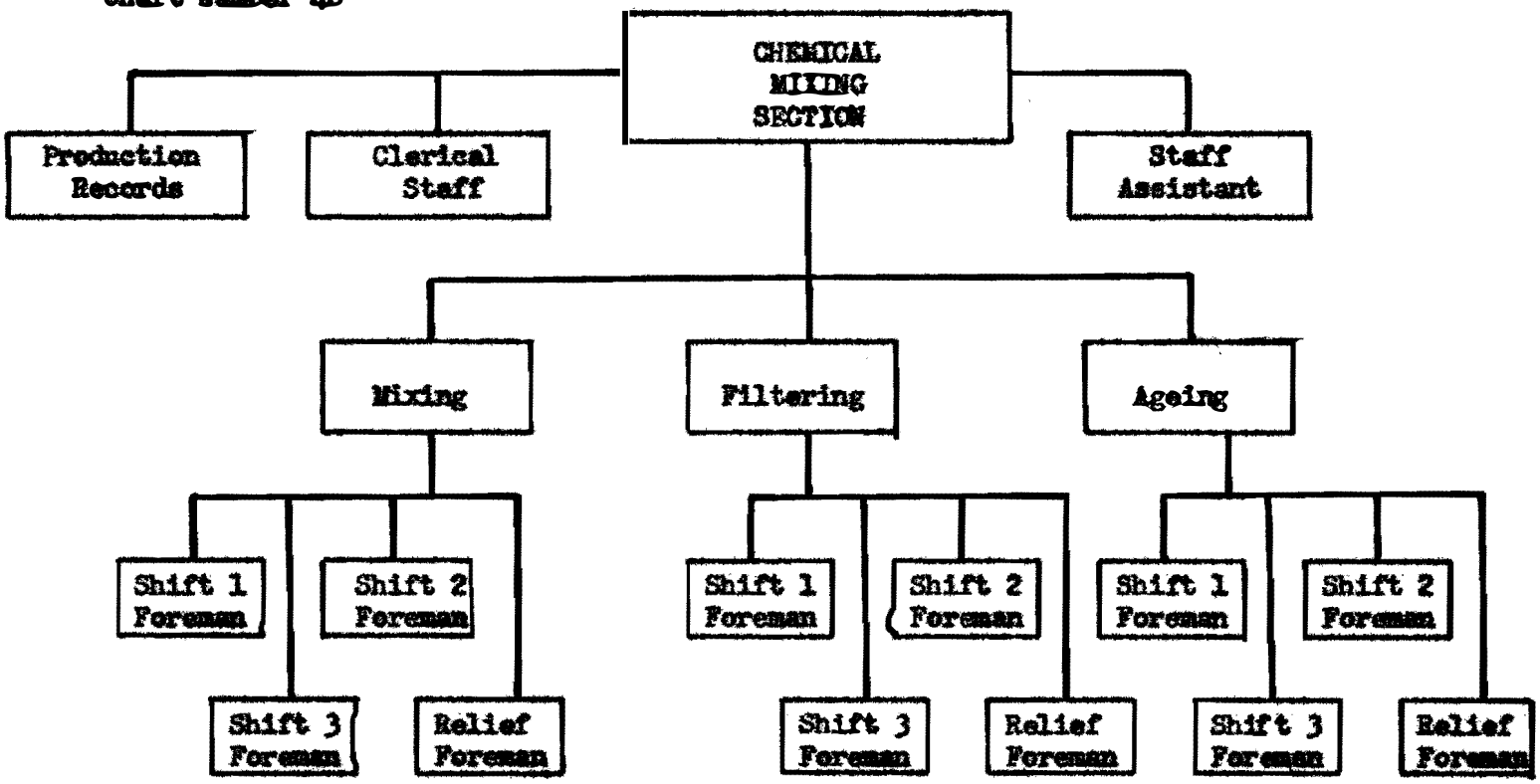


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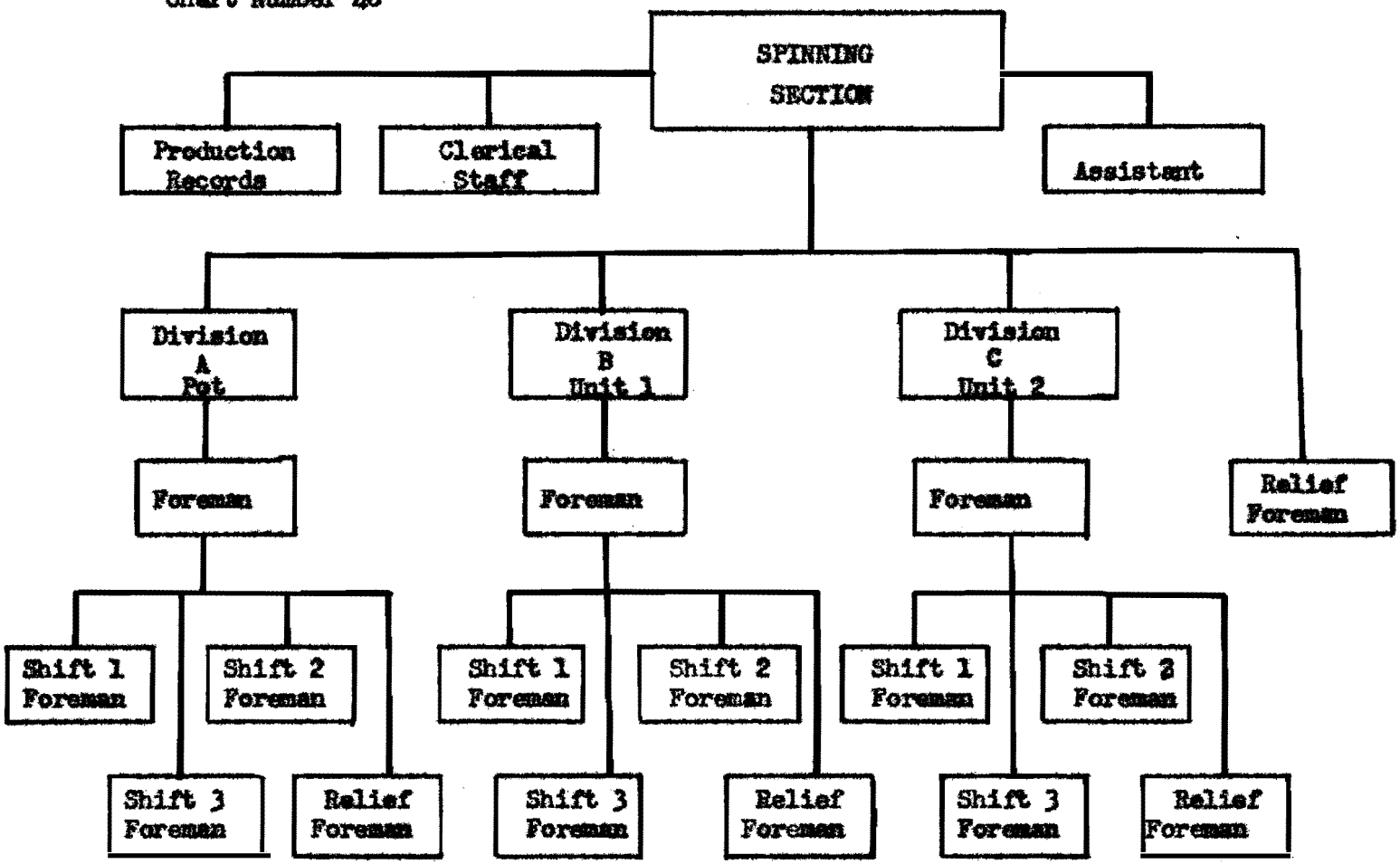


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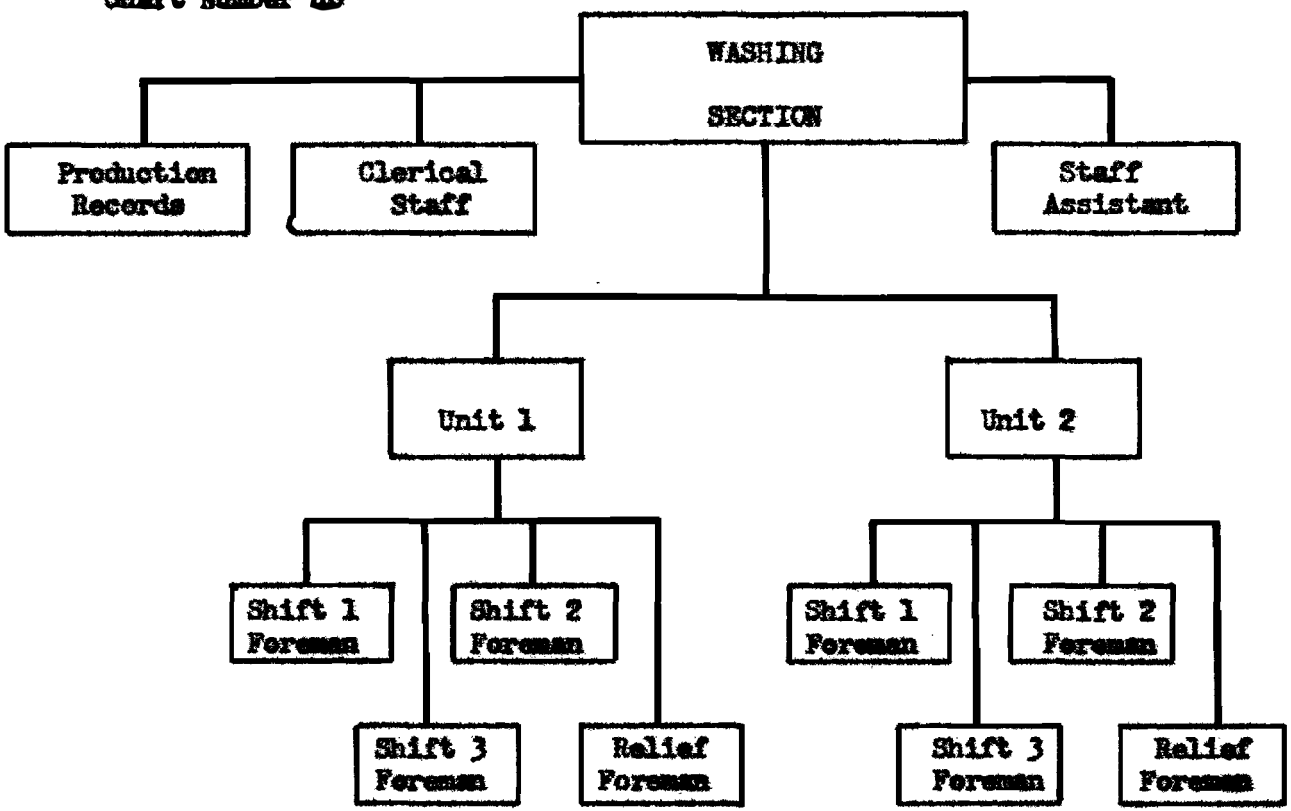


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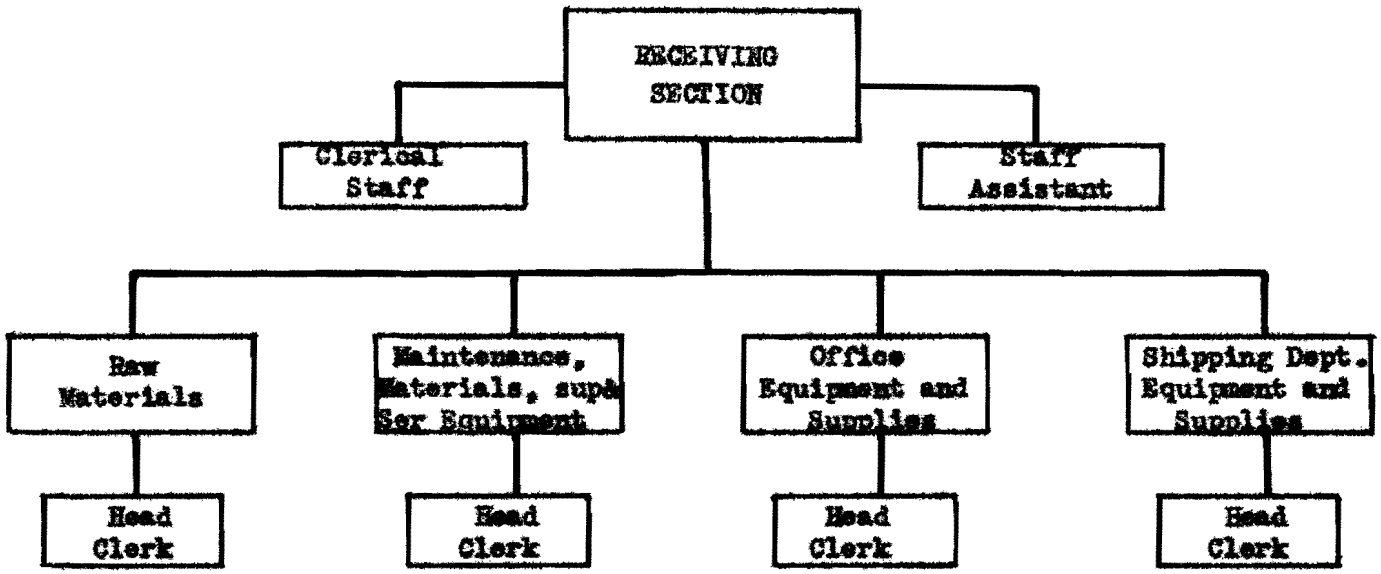


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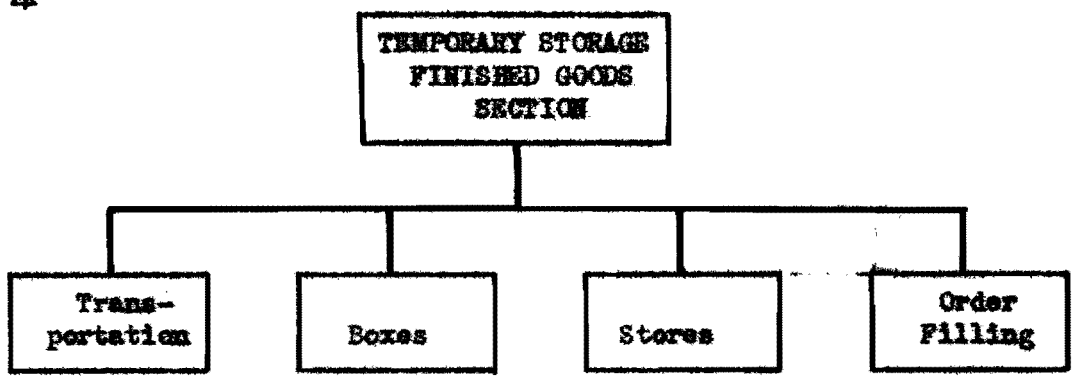


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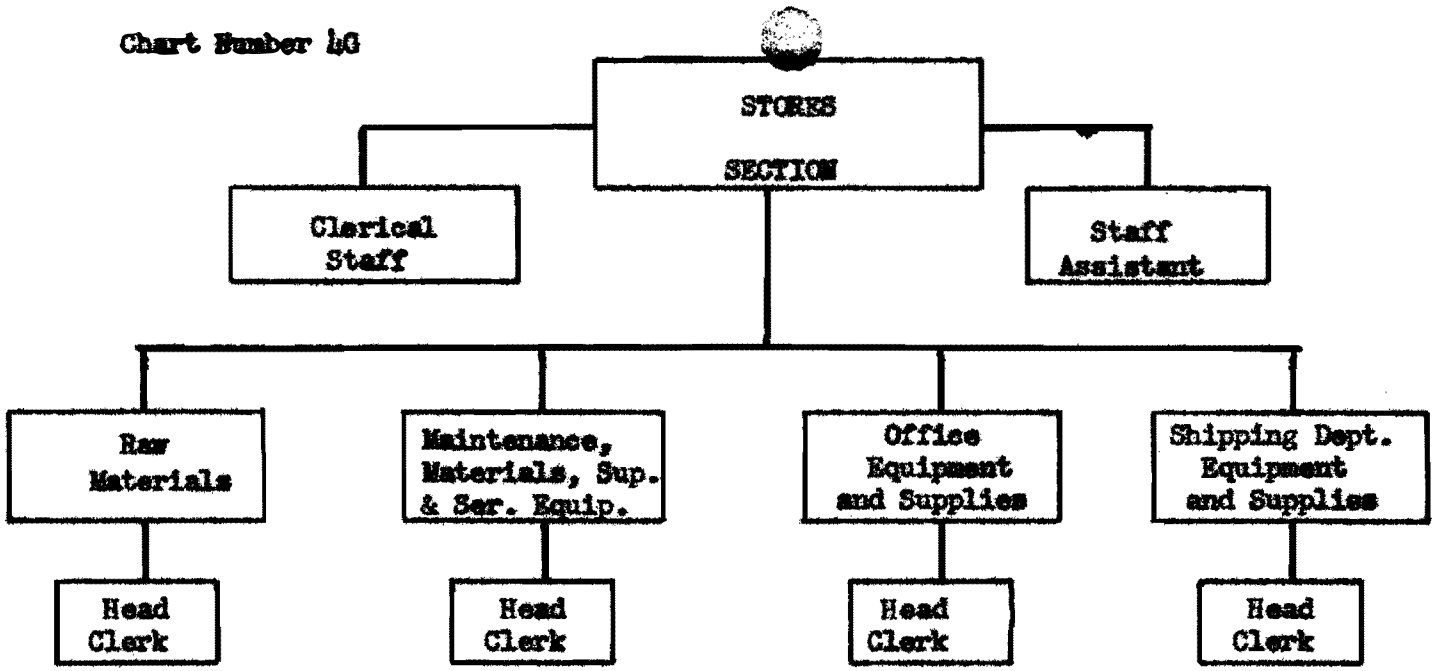


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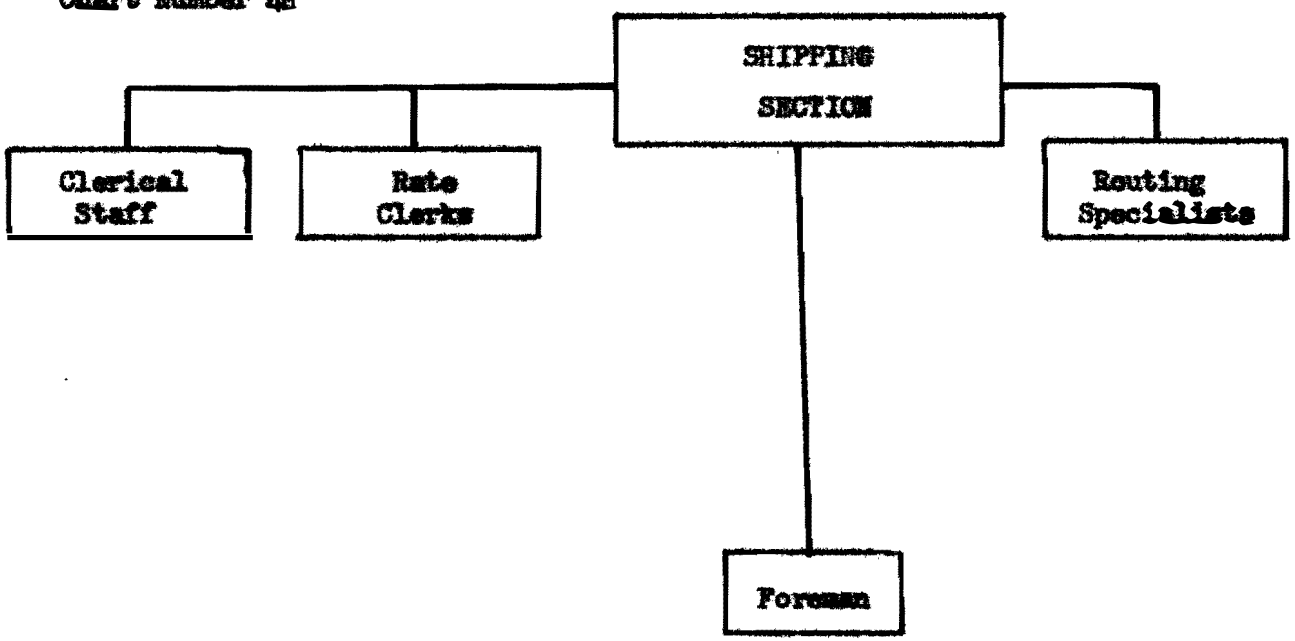


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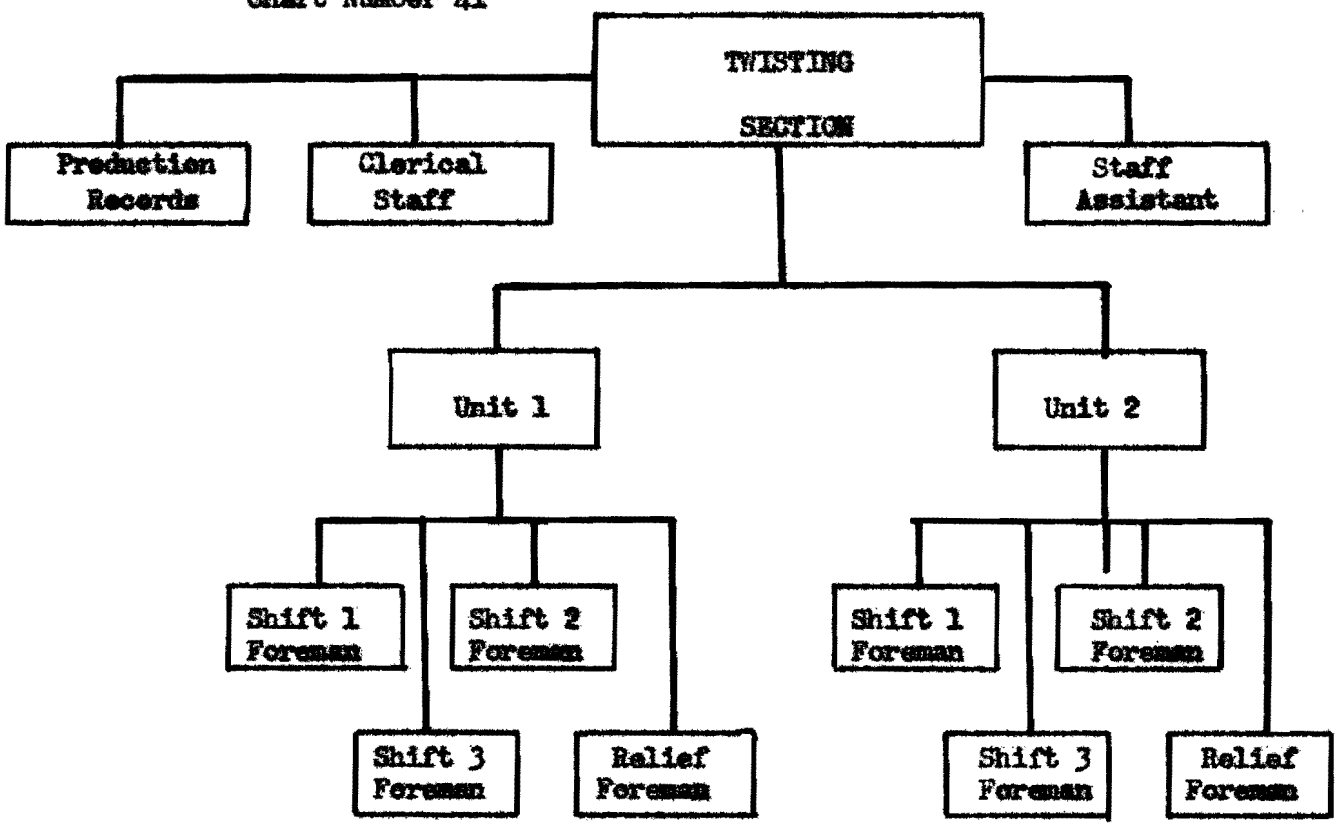


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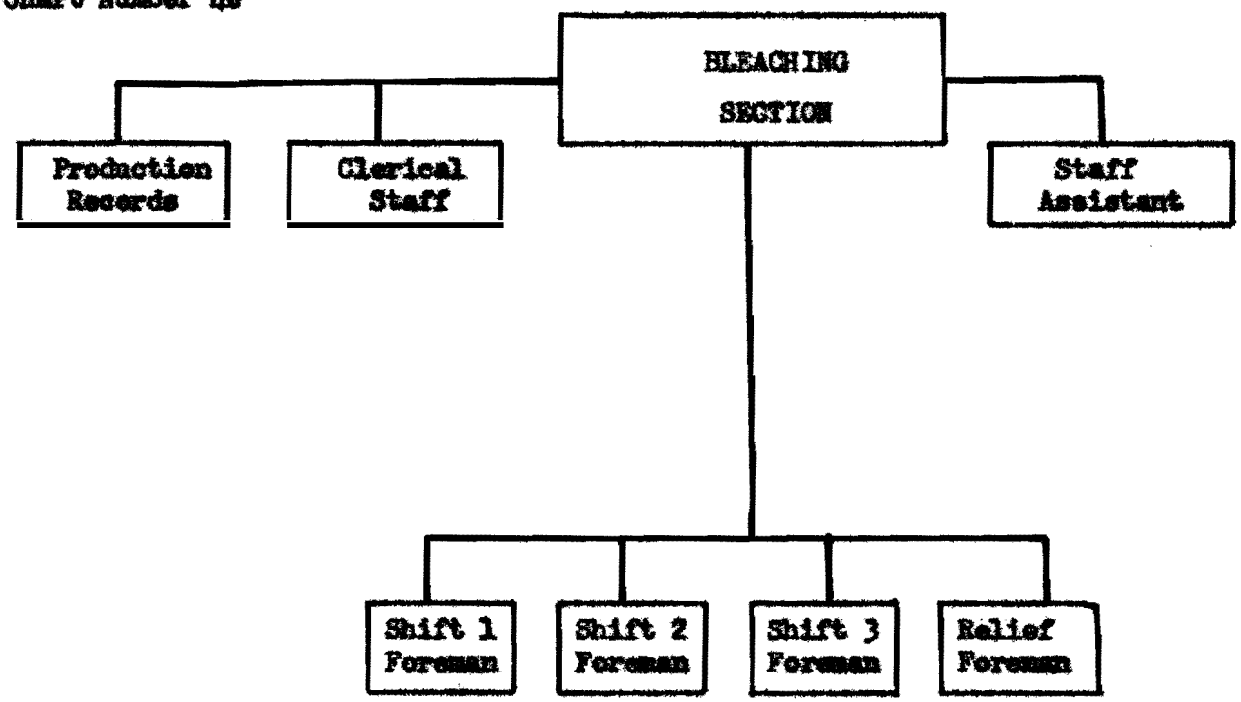


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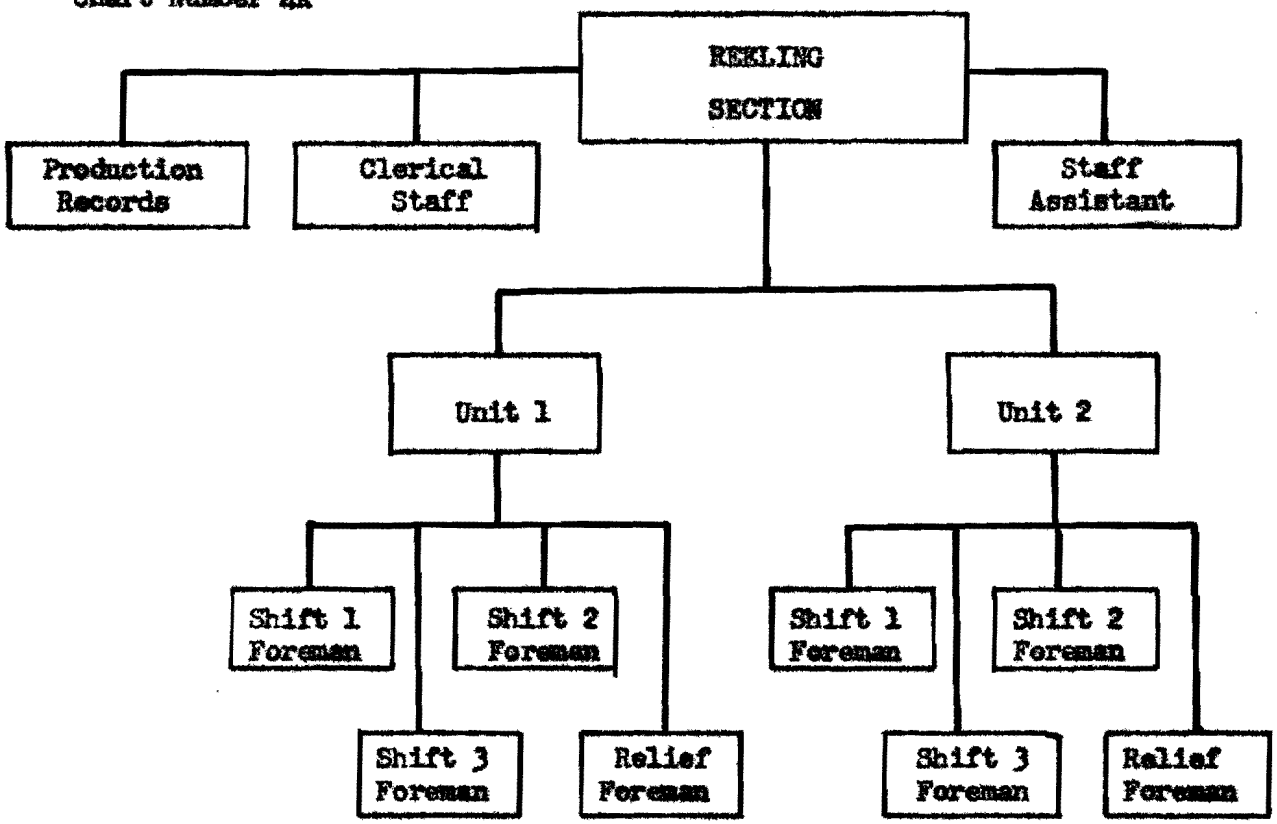


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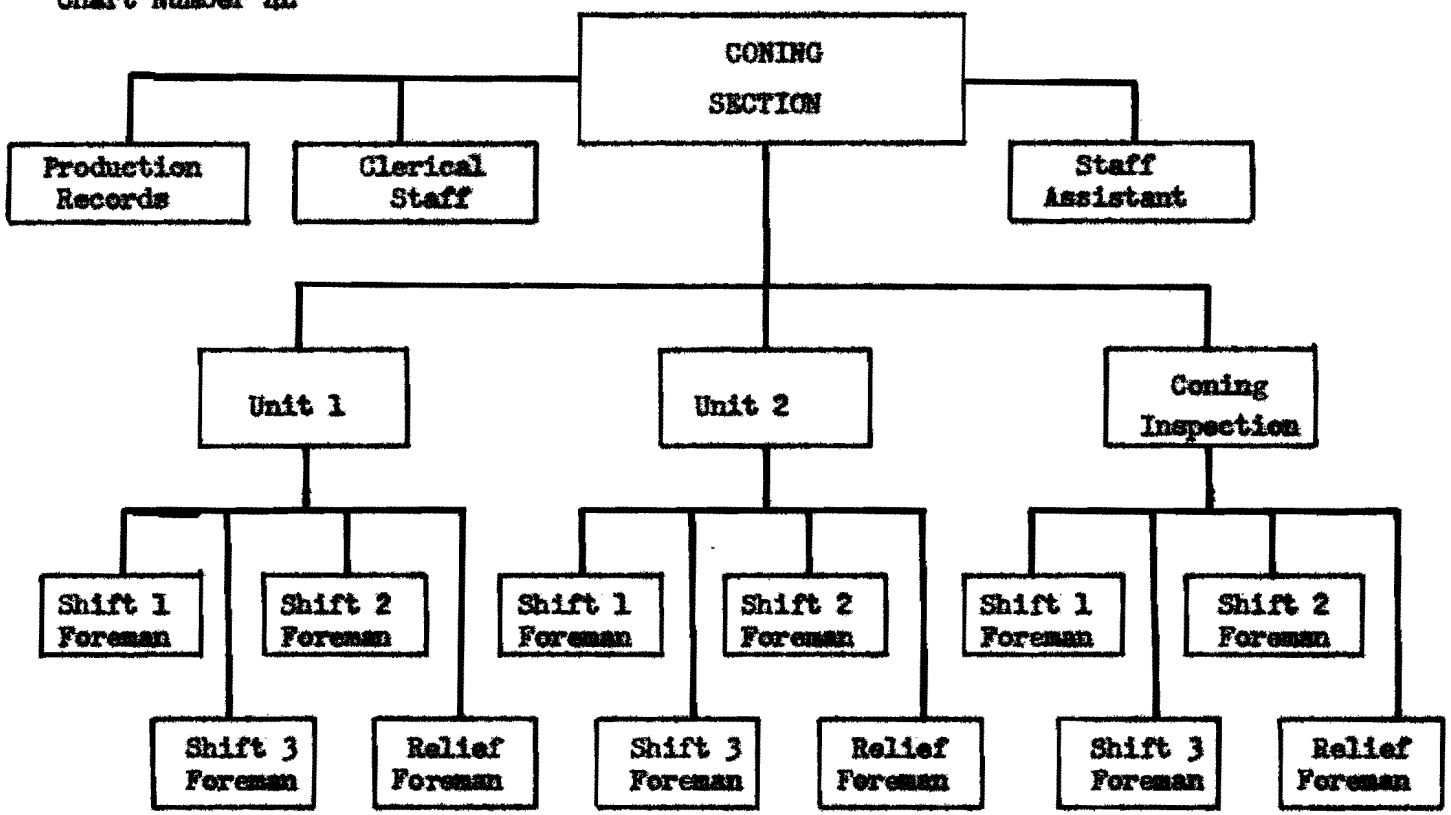


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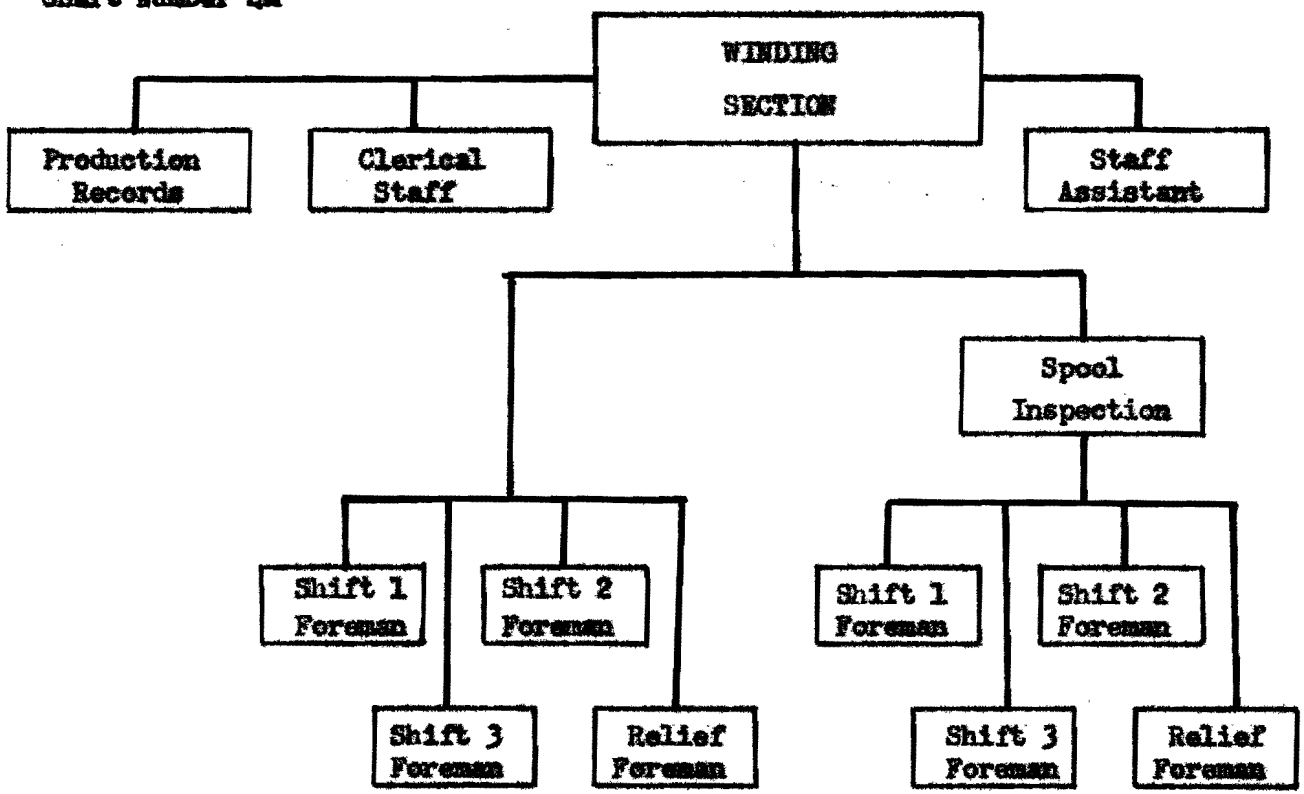


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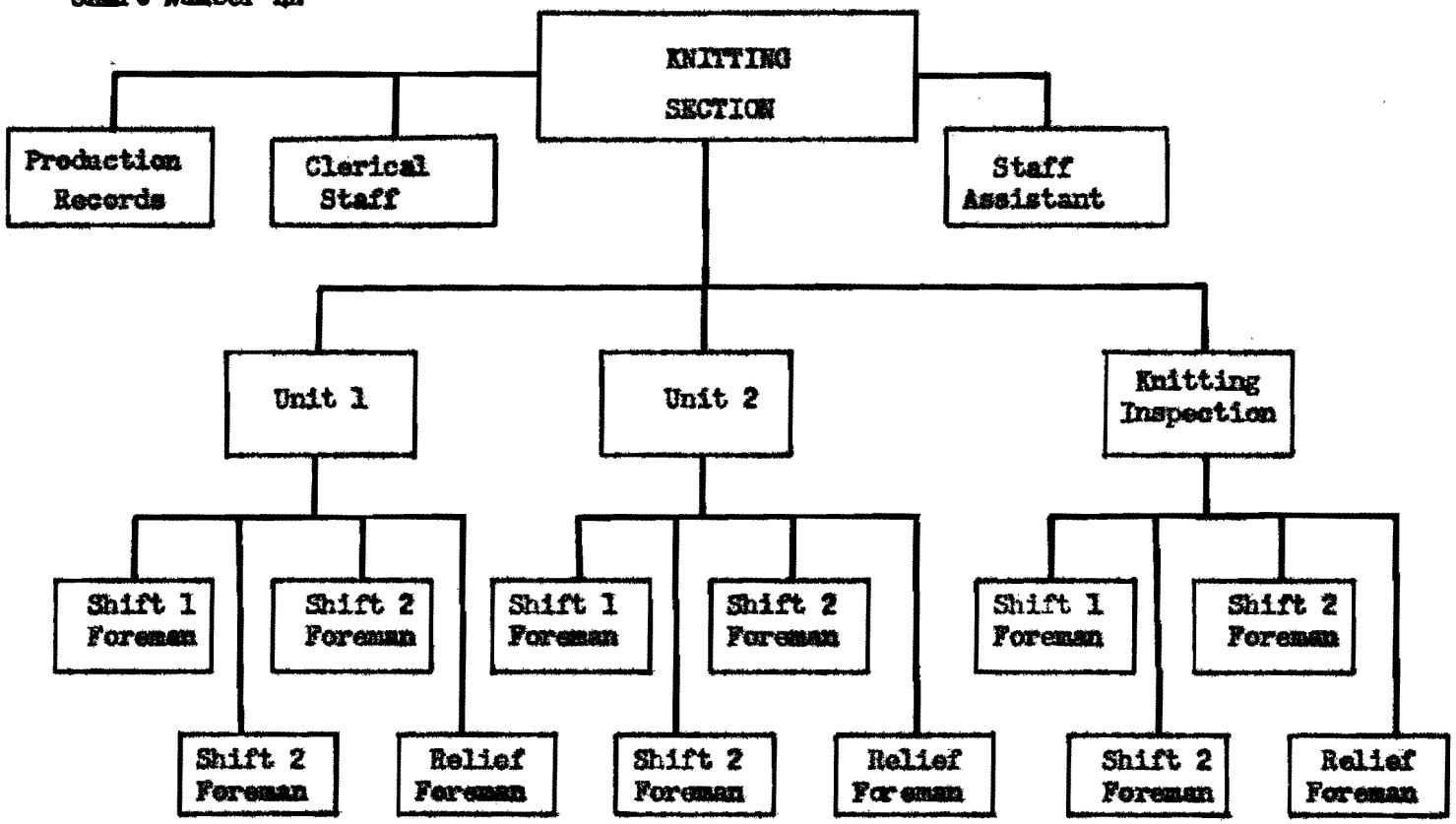


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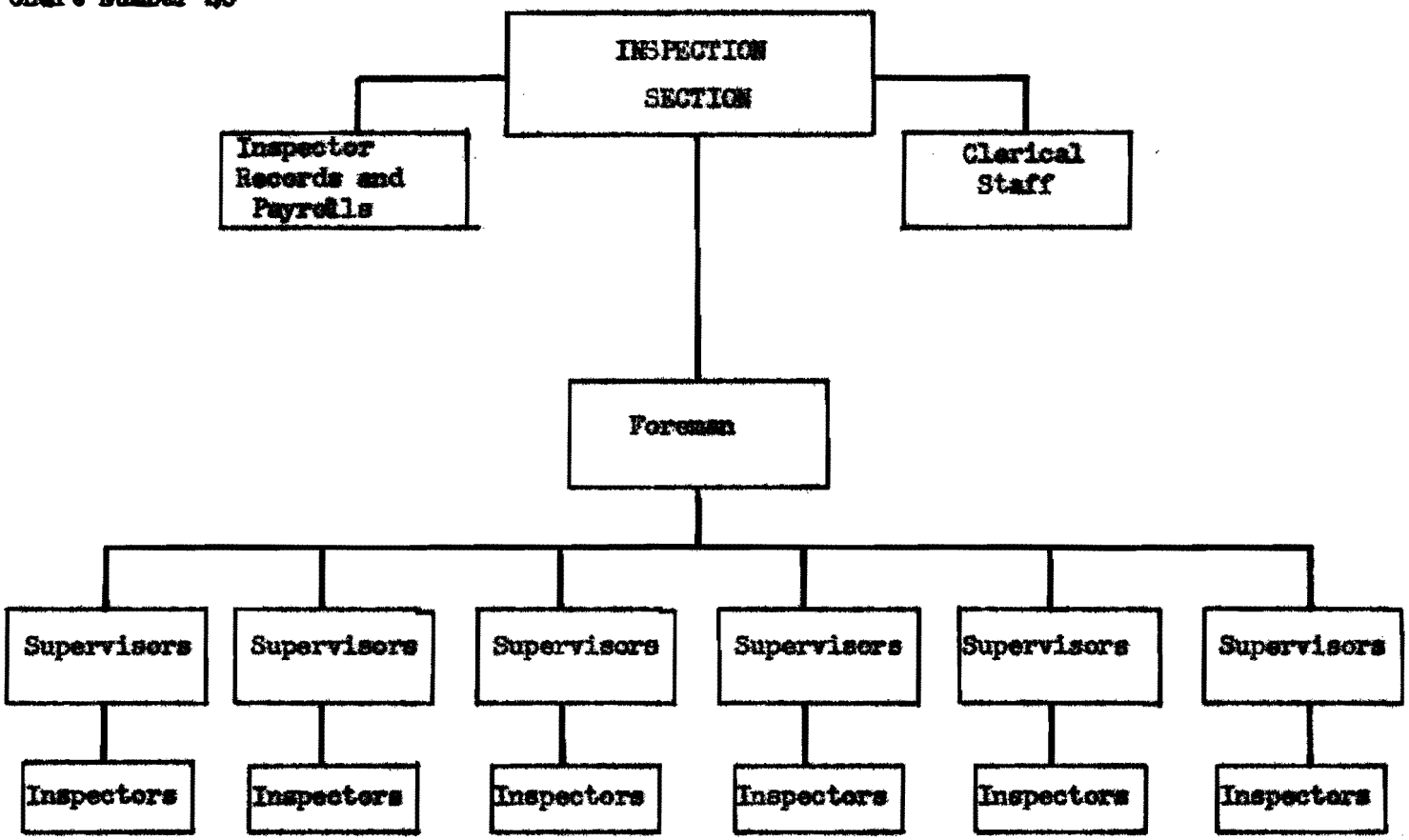


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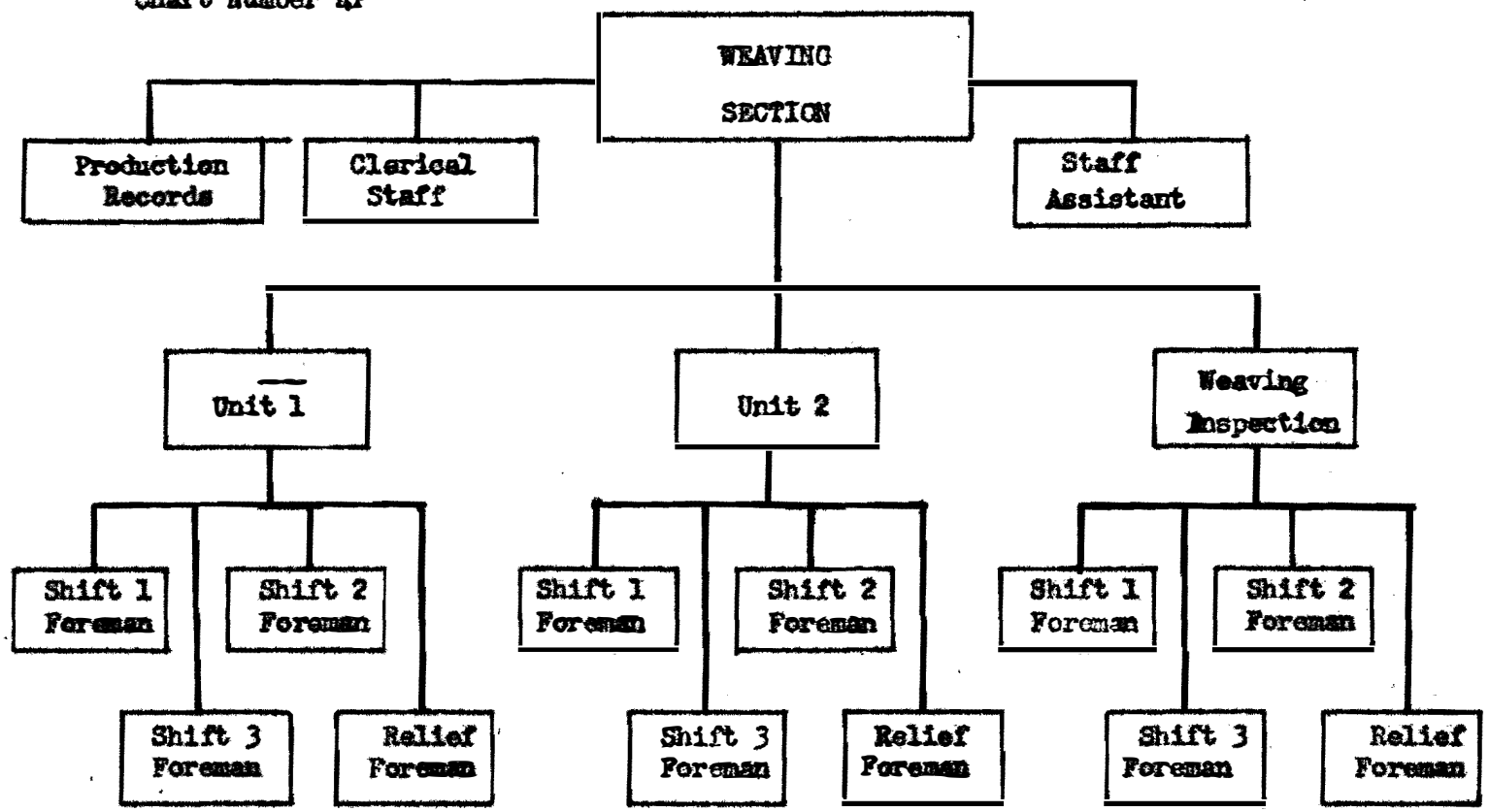


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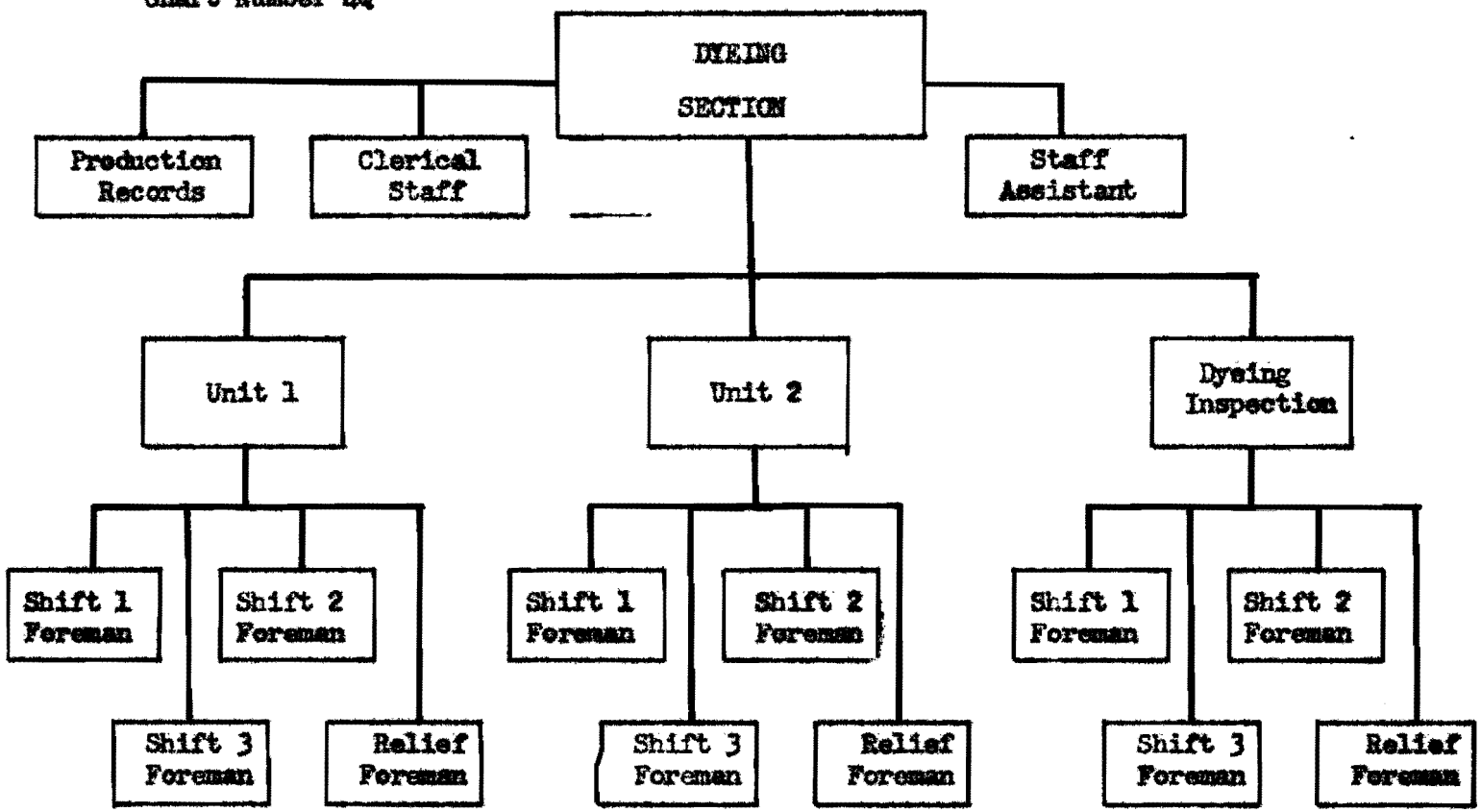


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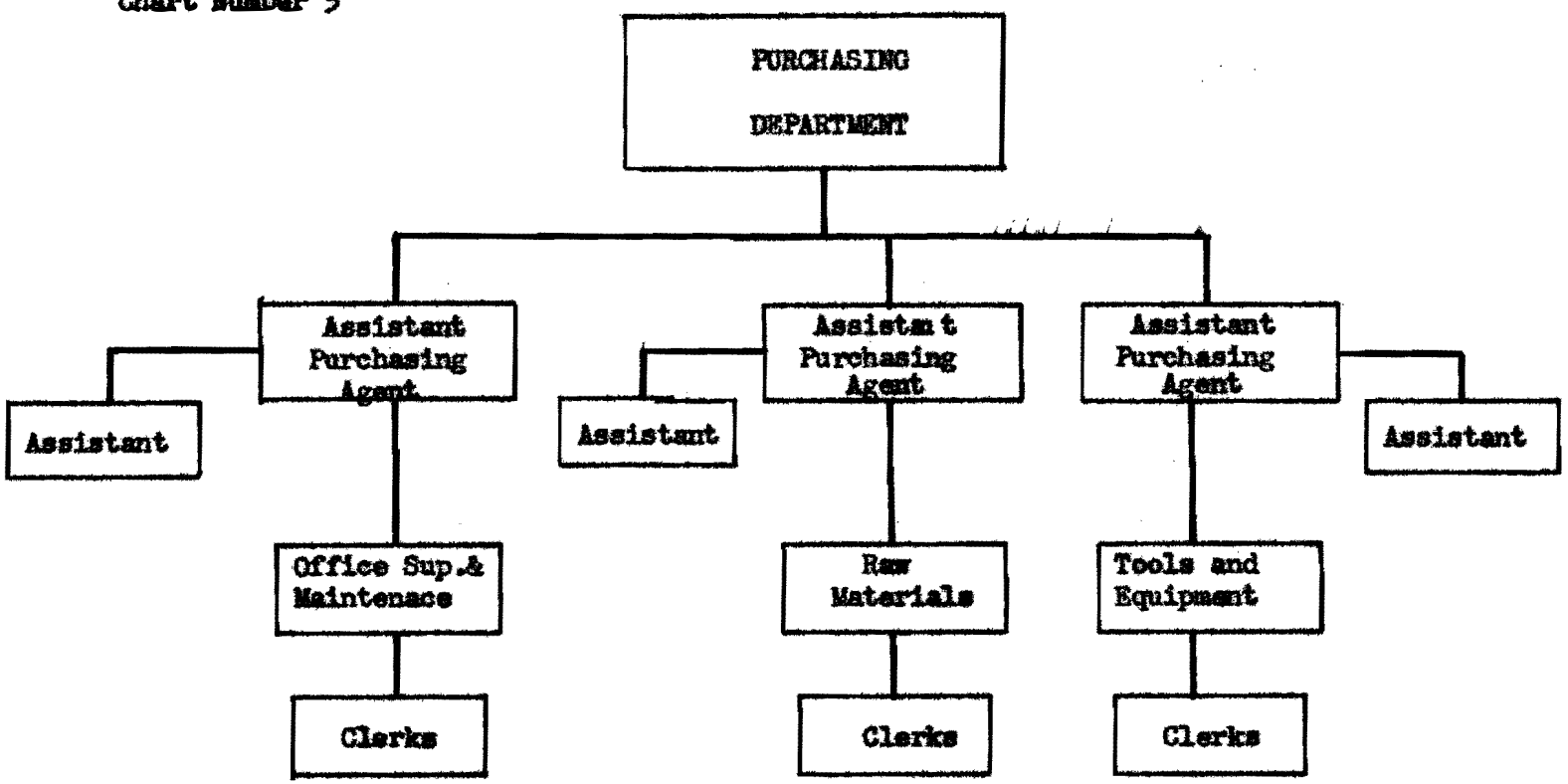


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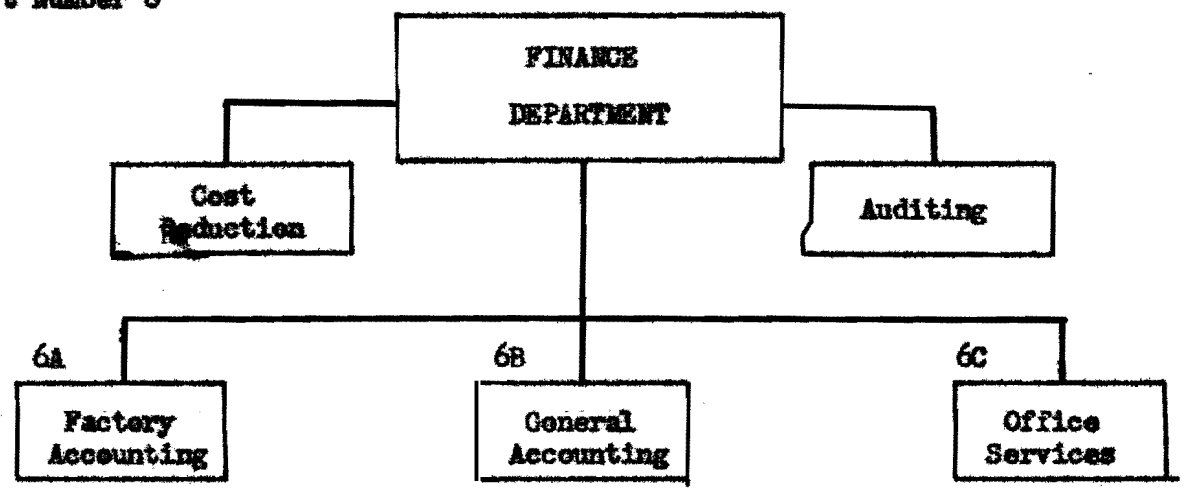


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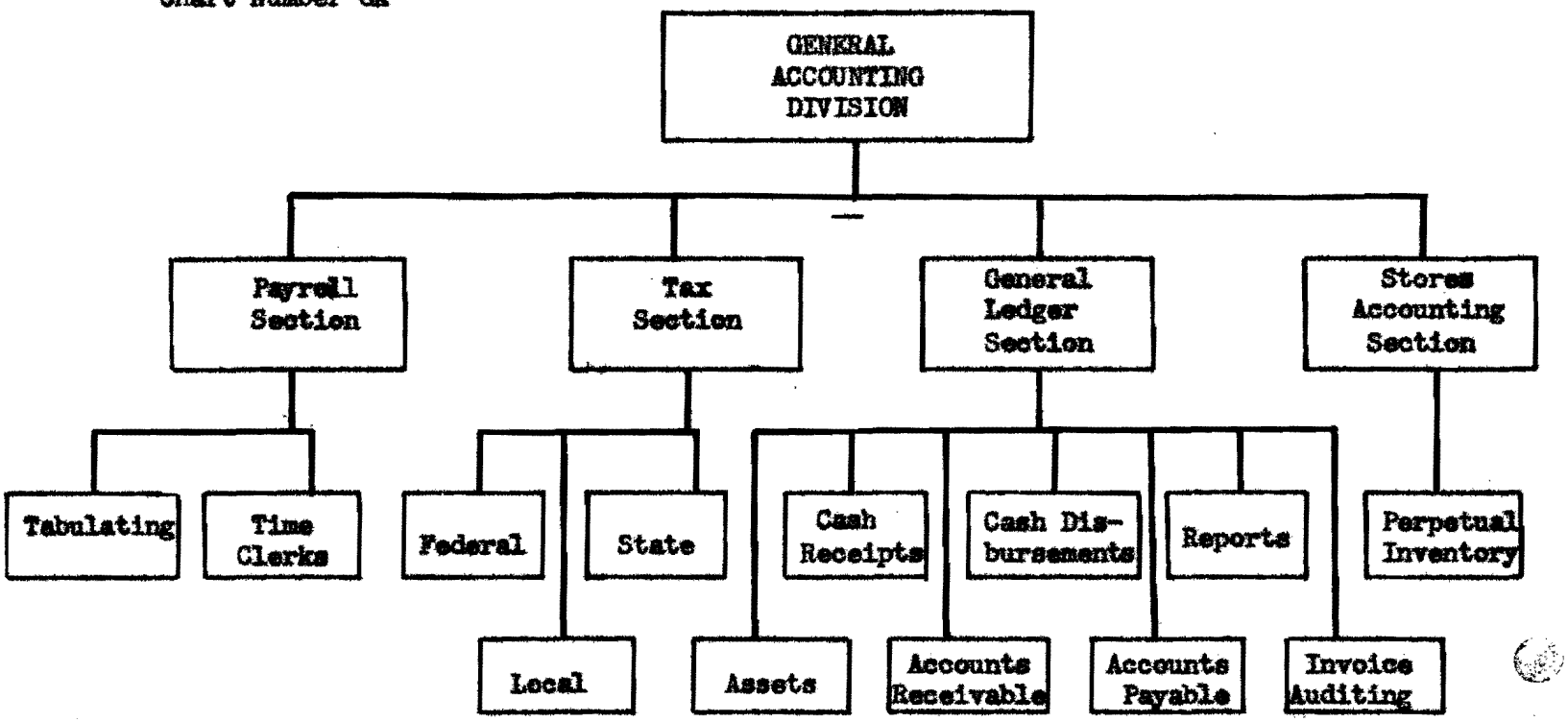


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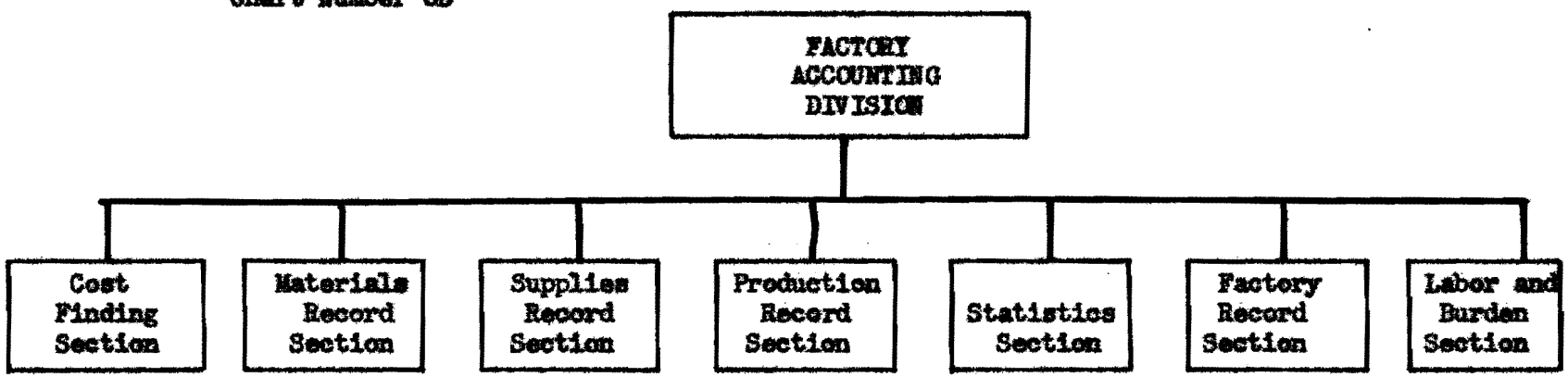


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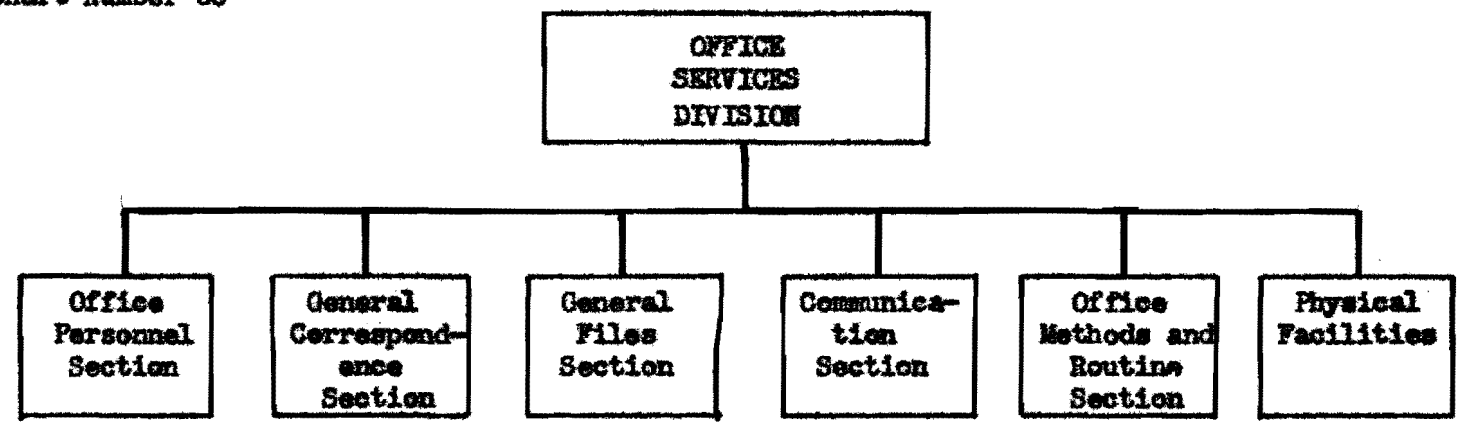
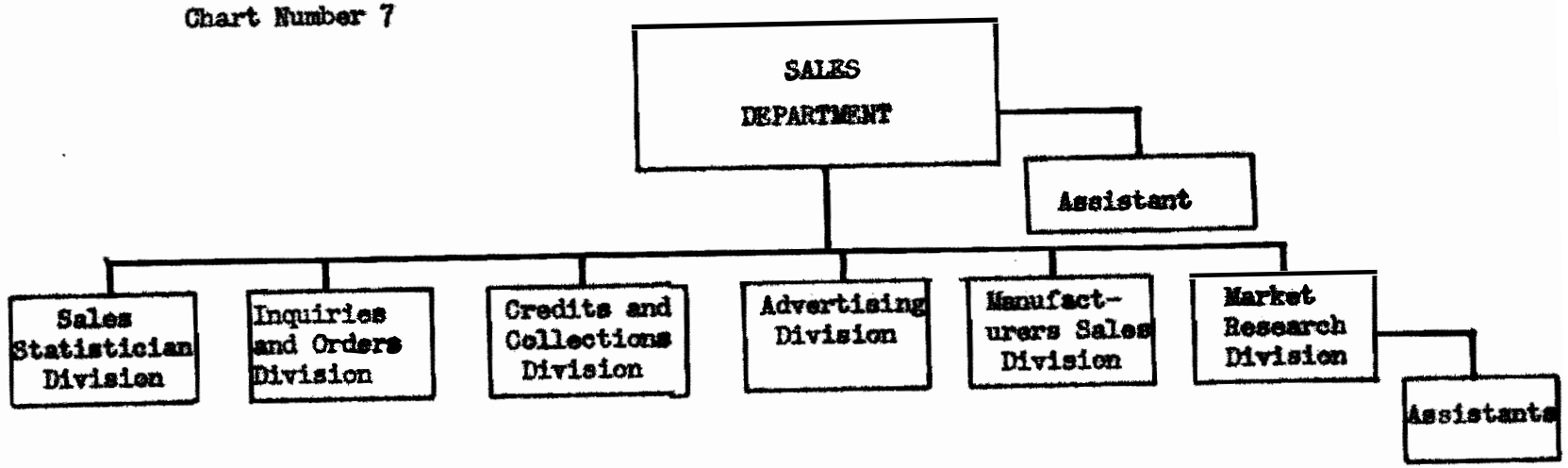


Chart Number 7



BIBLIOGRAPHY

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Adams, Thomas S. and others, Manual of Charting. New York: Prentice-Hall, Inc., 1924. 166 pp.

Bethel, Lawrence L., et. al., Industrial Organization and Management. New York: McGraw-Hill Book Company, Inc., 1945. 798 pp.

Brown, Alvin, Organization, A Formulation of Principle. New York: Hibbert Printing Company, 1945. 308 pp.

Burtt, Harold Ernest, Principles of Employment Psychology. New York: Harper & Brothers Publishers, 1942. 568 pp.

Conference Board Reports, "Company Organization Charts." New York: National Industrial Conference Board, Inc., Studies in Personnel Policy, No. 64, 1944. 28 pp.

Cornell, William B. and McDonald, John H., Business Organization and Practice. New York: American Book Company, 1936.

Cornell, William B., and McDonald, John H., Organization and Management. New York: The Ronald Press Company, 1936. 791 pp.

Donaldson, Elvin F., Business Organization and Procedure. New York: McGraw-Hill Book Company, Inc., 1938. 579 pp.

Furid, John J., How to Make and Interpret Functional Organization Charts. New York University Bookstore, 1943. 64 pp.

Heyel, Carl, The Foreman's Handbook. New York: McGraw-Hill Book Company, Inc., 1943. 410 pp.

Karsten, Karl G., Chart and Graphs. New York: Prentice-Hall, Inc., 1925. 734 pp.

Leffingwell, William H., Office Management, Principles and Practice. New York: McGraw-Hill Book Company, Inc., 1935. 850 pp.

Lester, Richard A., Economics of Labor. New York: The MacMillan Company, 1941. 913 pp.

Magee, John H., Life Insurance. Chicago: Richard D. Irwin, Inc., 1942. 727 pp.

Mooney, James D., and Reiley, Alan C., The Principles of Organization. New York: Harper & Brothers Publishers, 1939. 223 pp.

Moore, Herbert, Psychology for Business and Industry. New York: McGraw-Hill Book Company, Inc., 1942. 526 pp.

Neuner, John J. W., and Benjamin R. Haynes, Office Management and Practices. Cincinnati: South-Western Publishing Company, 1941. 530 pp.

Newman, William H., Business Policies and Management. Cincinnati: South-Western Publishing Company, 1940. 644 pp.

Niles, Mary Cushing Howard, Middle Management, The Job of the Junior Administrator. New York: Harper & Brothers Publishers, 1941. 270 pp.

Owens, Richard N., Owens on Business Organization. New York: Prentice-Hall, Inc., 1938. 697 pp.

Schell, Erwin Haskell, Administrative Proficiency in Business. New York: McGraw-Hill Book Company, Inc., 1936. 292 pp.

Schreiber, Norman B., Philosophy of Organization. Chicago: A. Kroch and Son Publishers, 1943. 113 pp.

Scott, Walter Dill, et al., Personnel Management. New York: McGraw-Hill Book Company, Inc., 1941. 588 pp.

Tennessee Valley Authority, Organization of the Tennessee Valley Authority. Knoxville, Tennessee: Office of the General Manager, 1937.

Tosdal, Harry R., Introduction to Sales Management. New York: McGraw-Hill Book Company, Inc., 1940. 523 pp.

Training and Reference Manual for Job Analysis, June 1944. Washington, D. C.: War Manpower Commission, Bureau of Manpower Utilization, Division of Occupational Analysis and Manning Tables, 1944. 103 pp.

Urwicks, L., The Elements of Administration. New York: Harper & Brothers Publishers, 1943. 132 pp.

ZuTavern, A. B., "Management in Business," Flexible Teaching Units, No. 19, South Pasadena, California: Commercial Textbook Co., Ltd., 1942.

APPENDIX

APPENDIX

414 Eleventh Street
Knoxville, Tennessee
May 6, 1946

Office Manager
Cutler-Hammer, Inc.

Dear Sir:

I am writing my master's thesis, entitled "An Analytical Study of Organization Charts as They Pertain to the Organization, Administration, and Supervision of Office Duties," at the University of Tennessee. In this study I hope to analyze these charts according to the various items of information which are contained in them. I have selected only 200 corporations to which I am making this appeal.

I would greatly appreciate it if you would send me a copy of those organization charts that are used by your concern in connection with the organization, administration, and supervision of office work. I assure you that in analyzing these charts the identity of the corporation will not be disclosed in any way as each of the charts will be compiled with the corresponding data contained in all of the other charts.

I shall be glad to send you a copy of my frequency tables which might possibly be of assistance to you.

I wish to thank you for your courtesy in this matter.

Sincerely yours,

Eugene Puett