THE FOREMAN

A TREATISE UPON THE
QUALIFICATIONS, POWERS, DUTIES, AND RELATIONS
OF A FOREMAN IN MANUFACTURING

TRAINING BULLETIN No. 26
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THE FOREMAN: A TREATISE UPON THE QUALIFICATIONS, POWERS, DUTIES, AND RELATIONS OF A FOREMAN IN MANUFACTURING.

CHAPTER I.

INTRODUCTORY.

When Webster wrote his dictionary the function of a foreman was to "superintend"; to be "an overseer." The industrial world has changed since that day; the foreman is now a man of many and diverse responsibilities. He has still to superintend the workers in his department or working upon his special function, but that is perhaps the least of his obligations. He attends to interviewing applicants for work in over 90 per cent of our establishments, and actually hires and fires in almost as many. He routes material, chases stock, repairs tools, places machinery, trains new and upgrades older labor, attends to intricate calculations for some perplexed worker, estimates upon the purchase of new machines, acts as the court of first instance in some, and as court of appeals in other disputes, helps the employment man to find new labor, the welfare man to adjust some family trouble, and the rate setter to determine the cost of some operation, and through it all he makes out reports and records, requisitions, and inventories, until the wonder is that he does his work so well amid the jam of crowding demands.

It has been the tradition that foremen came from the ranks of the highly skilled tradesmen, and until very recent years this has been true. But the demands of expanding business and the decadence of skill among our industries have compelled employers to promote many men whose technical training is not of the grade of a few years ago. This, with the severe modern demands, has made the task of the ambitious foreman exceedingly difficult. It is hoped that employers may soon realize their duty to their own industry sufficiently to take up thorough industrial training for their own employees, including apprenticeships wherever possible for the young men coming into industry, before we run out of trained men. But even if employers rise to the need, the present generation of foremen can not be given the preliminary training which so many of them need and earnestly desire. It is to help these ambitious men, from whose ranks many of the business leaders of to-morrow will come, that this pamphlet is prepared by the United States Training Service.

The method of this treatise requires a word of explanation. It is written for the foreman who wants to know how to be a good foreman; not for the employer who wants his foreman to be a good
foreman. The chapters are organized as suggestions for a lecture course, which may be used by foremen in their own meetings, or, with the cooperation of employers, in staff schools. It is hoped that in many communities the cooperation of public authorities may be enlisted to add the facilities of continuation schools upon the technical subjects which can only be suggested in such a pamphlet as this.

This may be the last publication of the United States Training Service, which is now almost 1 year old, and which will cease operations June 30, should no continued appropriation be given it by Congress before that date. It is a pleasure to express the gratification of every officer and employee of this service at having enjoyed this opportunity thus to serve the great manufacturing interests of our country upon a phase and manner of education which has too long been neglected.

The preparation of this bulletin has engaged the faithful services of many able foremen and educators. Mr. Arthur W. Le Boeuf, expert upon training methods, was in charge during the early portion of the work, assisted by Mr. E. Van Dorsten, Mr. Melville La Marche, Mr. P. C. Pickrel, and Mr. Frederick G. Timperley, to the latter two of whom especial credit is due for the most of the practical information included. In the final compilation, Mr. James F. Johnson, chief of training methods, took charge in person, and, with Mr. Seymour L. Smith, Mr. Alfred A. Mercier, expert on textiles, and Mr. William Brown, assistant superintendent of training, contributed valuable data and rewrote several chapters. Assistant Director Stillman A. Benway, himself a former foreman of wide experience, prepared a couple of the most important chapters; and the research section contributed bibliographic material. Thanks are due to Messrs. John C. Spence, of the Norton Grinding Co., Worcester, Mass.; E. A. Barnes, of the General Electric Co., Fort Wayne, Ind.; and L. D. Burlingame, of Brown & Sharpe, Providence, R. I., for constructive criticism on various portions of the work, which because of its special importance was completed under my personal direction.

C. T. Clayton, Director.
CHAPTER II.

MODERN ORGANIZATION METHODS.

1. Types of organization:
   (a) Patriarchal.
   (b) Departmental.
   (c) Line and staff.
   (d) Functional.

2. Changing business methods.

3. Social insurance.

1. Types of organization.—The foreman should have at least a general idea of the various types of industrial organization, under which he may be required to serve; otherwise he may attempt to apply principles governing one type to an entirely different type of organization. There are four general varieties, within one of which any industrial organization may be classified.

   (a) Patriarchal organizations.—The small shop, run personally by the owner, is usually of the patriarchal type; but many quite large plants, which have grown up around a strong, old-style employer, have the typical features. In plants of this kind the owner has a foreman, or foremen, as his right-hand man. The foreman has full charge of the shop and all that pertains to its operation and supervision. Every branch of work within the factory may be considered as his duty, such as hiring and firing, purchasing materials, tools, equipment and supplies, repair and care of machinery, inspection, management of light, heat, and power—in fact, every phase relating to operation and production. In plants like this the foreman has wide powers and responsibilities; but his duties are so multifarious that he has hardly time to do anything thoroughly. The operations of such a plant are usually characterized by an absence of system, and such modern innovations as the perpetual inventory, cost accounting, or employment management are generally unknown.

   (b) Departmental organization.—In this type the owner assigns each foreman to a distinct department, within which he is supreme. All the duties of management within the department devolve upon the foreman, whose powers are quite similar to those exercised by the foreman in the first type, excepting that he is limited to a department. This system, however, is often varied to admit of a subdivision of responsibilities among other officials. The purchasing agent takes over the buying of supplies; the main office makes up the payroll; and the superintendent attends to the routing and dispatching of materials and assembled product through the several departments. Many plants have this system of organization.

   (c) Line and staff.—Under the line-and-staff organization there are many departments, both in the production and managerial
branches. The management has a staff of expert advisors who are heads of such branches as engineering, including drafting design, determination of processes, selling, purchasing, cost accounting, pay department, personnel department, etc. These divisions of manage­ment relieve the foreman of many duties required under the two types of organization previously mentioned. He will obtain much assistance from the staff for instructions and advice. It is quite important in such a plant that the foreman's duties should be clearly defined by the management, and the extent and limitations of his powers stated in advance.

(d) Functional management.—This is the newest type of industrial organization, and so far it has been confined almost solely to very large establishments. Its organization and operation requires considerable initial investment, and only a firm of a large capital, apparently, can undertake it. The foreman's place in a functional organization is strictly limited. He will have but one branch of work under his charge, rather than a unit of the plant. He may be in charge of machine-tool repairs, or inspection, or speed setting, or some part of production. Whatever it may be, he will devote himself to the single function, and must confine himself within set limits. The theory of this system is that production will be larger, of better quality, and finally cheaper in unit cost, if the management and the operatives work in sequence, by processes, rather than upon a unit or complete portion of operation. In place of one foreman of the patriarchal or departmental type there may be ten or a dozen separate foremen, each handling a single element of the duties formerly discharged by one man. A list of the responsibilities of a foreman of the first type will fill a good-sized page, footing up from 15 to 30 distinct duties. These duties are split up among the dozen func­tional foremen, so that each has only one or two, and he is expected to get much more work out of his force because he can center upon his narrower line. Under this plan these foremen will each frequently have charge of many elements of a single job, at the same time, and in the same shop.

All of industry is the result of method, and method is being rapidly developed. The foreman should devote some of his time to the study of the principles of the great modern industrial organizations. Some publications explaining the subject are listed in the bibliography at the close of this pamphlet.

2. Changing business methods.—In the early days of manufac­turing, there was generally a wider margin of profit to invested capital than now, and the close calculations of modern management were not thought of. Many large modern concerns make enormous net profits upon a turnover running less than 1 per cent, but accomplish it by watching every hairbreadth of expense. This new condition has brought about analysis of every element of business organiza­tion and operation until whole volumes are published upon minor phases of investment. The difference between day-work payments, piecework, bonus and premium, and other incentive systems, for example, has served as text for a hundred volumes, and the overhead cost of most large firms, for expert advice, is a large annual proportion of their budget.

3. Social insurance.—Another modern development is beginning to be known as "social insurance." It comprises old-age pensions,
health insurance, accident insurance, employment insurance, the minimum wage, and workmen's compensation. Although the whole movement is so modern that few realize its extent, every one of these proposals has already been enacted into law somewhere, and the tendency seems to be to adopt them generally.

The principle supporting them is that the workmen suffer from liabilities which are incident to their employment; that they can not relieve themselves, but the industry can assume these liabilities and spread their expense over the general product, and should do so as the principal beneficiary from the life work of these persons. This view is sharply opposed by many leaders in industrial life; but workmen's compensation, the first measure of this general class to be urged in this country, has been adopted by practically every State within the past 16 years. It is advisable that the foreman study the tendencies and tenets of this system of social legislation, which affects the management of industrial organizations in many ways and has direct bearing upon his functions.
CHAPTER III.
MODERN PRODUCTION METHODS.

The distinguishing feature of modern production methods is the minute and tireless analysis of every element entering into the making of the article, from the purchase and delivery of the raw material to the sale, delivery, and collection of payment for the finished product. Accounting systems pursue every fraction of a cent and never let up until they corral it, at no matter what cost for the capture. Job analysis is applied to productive operations and to office management; production records show what has been done and past performance is set against the future as a prophet; the perpetual inventory, the requisition, and the stores-accounting system keep track of every item of supplies. Accounting is the keynote of modern operation.

In the development of the business similar methods are applied. Most large plants now have the laboratory for scientific research, the school for development of future executives, and experts studying factory overhead or departmental unit cost; while in the sales and financing sides similar analytic methods seek to prevent waste and make every "lick" count.

It is up to the foreman to realize that he is in an age of exactness, when the chemistry of business has no use for waste efforts.

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CHAPTER IV.

PERSONALITY.

1. Personal appearance.
2. Conduct.
3. Personal habits.
   (a) Neatness.
   (b) Punctuality.
   (c) Tact.
   (d) Respect.
   (e) Personal pride.
4. Mental attitude.
   (a) Toward company's policies.
   (b) Care of workers.
   (c) Training and impartiality.
   (d) Accessibility.
   (e) Tenacity of purpose.
   (f) Power of observation.
   (g) Sympathetic comprehension.
   (h) Firmness.
   (i) Discretion.
5. Initiative.
   (a) Leadership.
   (b) Resourcefulness.
   (c) Development of personality.

1. Personal appearance.—Personality is expressed in the appearance of a foreman by the clothes he wears, and the way he wears them, by the bearing and manner he assumes, by his poise, and by the appearance of knowing what he is doing, the latter being an expression of his competence.

An outsider coming into his department should be able to single the foreman out as being the one in charge of the department.

2. Conduct.—As a foreman expects his subordinates to act, so he should act. He should set the example in his department. There ought to be no familiarity with anyone unless this familiarity includes all. The opinion of others must be considered in his own department, and whatever he does should be done in such a way as to cause him no regrets afterwards. His manner of comporting himself must be above reproach.

3. Personal habits.
   (a) Neatness.—The foreman expresses his neatness by the following: The condition of his clothes, his face and hands, and the appearance of his office, desk, and department.
   (b) Punctuality.—To arrive at the factory on time every morning should be the foreman's joy, not his duty alone. Even to go early because he can not get there too soon to start everyone right will be example for the workmen to follow.

   Punctuality is not only an early morning exercise. Throughout the day he will have inquiries from the workers about many things.
He should be punctual in answering these, reaching each man in his turn as he has arranged. The keeping of all appointments he makes, both in and outside his department is important.

(c) Tact.—Getting others to do things without friction and, if possible, without authority being made a prominent factor, is one form of tact for the foreman to practice. Courteousness, listening to and getting the other fellow's point of view, prevailing gently over the other's point of view, explaining necessary things to the unseeing, these are other factors. Opposition calls for the greatest display of tact. To keep men smiling even throughout opposition means success in using tact. In the distribution of jobs, it is tact that is often called for, providing there is not any one worker who is made the "goat."

(d) Respect.—A foreman gains the respect of workers by demonstrating his fitness to lead and instruct, by resourcefulness displayed in meeting emergencies, and by courage manifested in standing for right principles.

Respecting his own ability and setting a high standard of accomplishment for himself, he calls forth the same sentiments toward himself on the part of the workers, if he is consistent in decisions and general relations. The support he gives his men when they are right will also make them respect him.

(e) Personal pride.—Pride, if based upon honest achievement, is commendable. Pride in quality of work produced, in fulfilling management expectations, in appearance of department, and spirit of workers comes as the result of hard work and constant effort. This justifiable pride communicates itself to the workers, because it is not vain or selfish.

4. Mental attitude.

(a) Toward company policies.—The management expects the foreman to give full support to its policies, support to the limit. First he should be in a receptive mood to receive these policies, he should respect them unless he sees they react unfavorably, in which case he should endeavor to have the company change them. In those that affect the employees the foreman holds the most strategic position of anyone of the company's representatives. It is his business to report to the management the effect of policies on the employees, especially the newer policies. He should, therefore, be of open mind for suggestions; have thorough understanding and be able to explain policies; and make sure that the employees get the proper "slant" on these policies.

(b) Care of workers.—More and more the management is holding the foreman to account for the proper care due workers. Most company policies affect the employees in either a direct or an indirect way. When an individual is hired by a company, it is really a gentleman's agreement which is entered into and each is aware of his responsibilities toward each other. The foreman becomes in a sense the representative of both of these parties.

Consideration must be given employees and especially the women workers. The foreman must take the attitude that it is incumbent upon him to provide ways and means so that this care of workers can be observed.
(c) **Fairness and impartiality.**—To the foreman in industry, fairness means freedom from imperfection in his dealings with, or deciding between others, giving each his just treatment. Impartiality is freedom from favoritism. These are virtues which should be in the make-up of every foreman. They are acquired by conforming to truth, facts, and correct reasoning, and are essential to the maintenance of harmony in the shop, in the home, in business or social activities, and can be practiced in dealing out penalties as well as giving rewards for merit. Fairness and impartiality are expected from the foreman by his employees and his superiors.

The foreman's likes and dislikes must give way to fairness when he is dealing with his workers.

(d) **Approachability.**—The foreman should make himself readily accessible to his subordinates and others in the plant, especially on matters pertaining to production. On personal matters he should be reached at his convenience.

He should always be approachable. The employees expect not only to be free to interview him on business matters, but to get a welcome reception and fair treatment. He owes it to them to greet them cordially, at least, and to assist them in any way he can reasonably do so.

(e) **Tenacity of purpose.**—If you feel that you have chosen a wise course and it is logical for you to pursue it, do not give up.

This does not mean that one should never change his mind. When one becomes convinced that his ideas or ideals are not the best for him, he should not hesitate to change them. When this is necessary, however, lose no time in establishing new ideals.

The foreman possessing this quality will not follow the path of least resistance. He will move on in spite of obstacles, handicap, and opposition. He has a "stick-to-itiveness."

(f) **Power of observation.**—Everyone has the power to observe, but it is not everyone who exercises it. It is true, however, that many successful men are so because they do observe.

Here the foreman should make up his mind that nothing of importance in his department should escape his notice. Such things about the plant where he works that pertain to him or his department should also come under his observation. He should at least make a mental note of these, but it will help him greatly to make written notes of the more important details. This will develop his power of observation.

(g) **Sympathetic comprehension of the other fellow's attitude.**—Realization that no one is perfect will make a man much more tolerant of others. Persons are swayed and affected by their surroundings and by circumstances. No man should be judged severely for his shortcomings because, after all, by what standard can we judge others? Standards are too often only the results of conventionalities and these are not always justifiable. So, then, if the other fellow has an attitude which seems peculiar, analyze his case, "put yourself in his shoes," and try to view the situation from his standpoint.

This will often, if not always, furnish an intimate understanding and sympathy for the other fellow.

(h) **Firmness.**—Firmness is another quality which the foreman uses. This is either conscious or not. Let him be sure he is right, then go ahead with firmness.
Grant said: “I'll fight it out on this line if it takes all summer.” He had made up his mind that this was the proper course, and he was firm in executing this order.

The foreman, executive, or any leader of men will command little control of his men without it. When a foreman issues an order or makes a statement about his work, first being sure that he is right and justified, he must then stand his ground and exact the performance of the order.

(i) Discretion.—Many of the foreman’s duties and his powers are discretionary. He must often rely upon his best judgment in exercising his authority, having no definite guide to go by or to help him decide one way or another even on important questions. Then he must decide for himself, using discretion in order to make wise and fair criticism. His ability to do this is an index to his bigness.

5. Initiative.—Initiative is a power or ability to “start things,” to begin something and see it through. The foreman who has initiative can meet unusual situations wisely and successfully, because he can get the satisfactory solution for the problem which presents itself to him. It is by using his initiative that the foreman makes progress. A man lacking in the faculty gets nowhere.

(a) Leadership.—Some men’s personality begets them teamwork without effort, their subordinates work for them with vim and enthusiasm and all goes well. Unfortunately this is not true of everyone. Those whose personality does not naturally have the effect of inducing those about them to work as a unit, must develop this quality if at all possible, because, without it, they can not attain success as leaders of men. They should at such times resolve to correct their shortcomings rather than upbraid the workers, because it is a lack in their own make-up that is principally to blame for the trouble.

By making object lessons of each experience, the foreman will eventually develop a more pleasing and congenial personality which will obtain for him the requisite team work. By developing the resources of his men, his equipment, and his department, a foreman will get unity of action.

A good example of leadership is that obtained by the leader of an orchestra. His men must keep time to the fraction of a second, they must all play the right notes and with proper expression, otherwise there is discord and the results are bad.

Similarly the foreman in industry must line up his employees and get them all to pull together in harmony.

(b) Resourcefulness.—A resourceful foreman is one who can easily find a way out of difficulties and “tight places.” He can accomplish things even when he has little or nothing to do with them. He can do some jobs that usually require special machines, tools, or materials, without these by perhaps devising makeshift apparatus and under abnormal conditions that to the ordinary man would be quite impossible. He is not confined to only one way of doing a thing. He can do it several ways. He can protect himself at any time against unforeseen absences of any man.

(c) Development of personality.—By referring to the various virtues and qualities of a desirable personality, the foreman will be enabled to make a self-inventory which will greatly help him in de-
veloping his good and overcoming his weak points, and creating desirable qualities he does not already possess. He should do this seriously and earnestly. It may help him to make this a written examination, having first made out a list of the items mentioned in this chapter together with others he may deem advisable, then make under each heading an entry of his findings, being impartial, honest, and just with himself. He must not hesitate to pick himself to pieces in making this self-analysis. Those requisites which are lacking, partly or entirely, may be acquired by earnest effort and study of the subject and of one's own personality.

Having acquired this knowledge and applied it, the man should use perseverance in building up his personality. This will eventually become a habit and he will develop.

Measure yourself up to the standard you set for some successful foreman you know. Observe him and find out his good points, then try to develop them within yourself. If you aspire to a higher position, measure yourself up to it and see if you can fit it; if not, it is up to you to fit yourself.
CHAPTER V.

HANDLING MEN—SELECTION.

I. Sources of labor supply:
   (a) Unsolicited applications.
       1. Foreman's private prospect list.
       2. Applications at plant.
   (b) Solicited applications.
       1. Public employment offices.
       2. Private employment offices.
       3. Want ads.

II. Selection of workers:
   (a) Standards of adaptability.
       1. Physical characteristics.
       2. Health and strength.
       3. Mentalitv.
       4. Experience.
          (a) Questions.
          (b) References.
          (c) Moral character.

III. Type of workers:
   (a) Selection of unskilled.
   (b) Specialist.
   (c) Semiskilled.
   (d) Skilled.

IV. Interviewing applicants:
   (a) Meeting applicant.
       1. Private interview.
       2. Courtesy.
   (b) Elements for consideration.
       1. Kind of job to be filled.
       2. The right man for the job.

V. Cooperating with the personnel department:
   (a) Relations with personnel department.
   (b) Requisitions for workers.
   (c) Follow-up reports.
   (d) Recommendations for transfer.
   (e) Recommendations for promotion.
   (f) Recommendations for discharge.
   (g) Cooperation with various divisions.
       1. Safety division.
       2. Medical division.

The interest that was awakened a few years ago in employment and personnel work has been greatly increased by war demands for labor, and now many large firms and others of less magnitude are converted to the idea of a separate personnel department, responsible for the obtaining of workers, their entrance, development, and welfare in industry. It has been pointed out by these firms that one of the advantages derived is increased efficiency of foremen who are thus relieved of some of the most vexatious and distracting problems connected with plant management.
This text is written, however, to cover the varied types of organization that are in existence, recognizing the fact that personnel management as a distinct division of organization has not been generally adopted; and that in the majority of plants the foreman still has the burden of hiring, firing, transfer and promotion, as well as other phases of human relations to administer in connection with his principal function of getting production.

I. Sources of labor supply.

(a) Unsolicited applications.

1. Foreman’s private prospect list.—A list of this sort is, or can be, in the hands of most foremen, gathered without particular effort, having its source in outside contacts, personal acquaintances, and requests from workers in the plant to consider their friends for employment.

2. Applications at plant, in person and by letter.—A concern can “sell” its working conditions to the public, just as truly as it can create a demand for its product. The importance of emphasizing the things that build confidence in the management’s labor policy can not be too strongly impressed upon foremen. Good plant working conditions operate to influence the best class of workers to enter the employ of the organization.

(b) Solicited applications.

1. Public employment offices.—The public employment office is a labor exchange where all local opportunities for work may be available to applicants. When placing orders for workers with such offices, much better service will be obtained if the information given is in detail regarding both the job and the kind of men wanted—a limited “job specification,” in fact.

2. Private employment offices.—(a) Nonfee charging: Employers’ association employment offices, either maintained by a group of firms in one industry or by a combination of concerns in a locality, operate in a limited way on somewhat the same lines as a public employment office.

The method of getting service and cooperation from this source is practically the same as in the case of the public employment office. In either event, the foreman should make it a point to become personally acquainted with the man in charge and with the “examiners,” if possible, inviting them to visit his department with a view to familiarizing themselves with the machine and trade operations, the better to qualify them to examine applicants.

If the plant has a personnel department, the contacts with employment offices would be made through it, but foremen would be called upon to cooperate in familiarizing representatives from such offices with the types of work and trades in the plant.

(b) Fee-charging agencies: The service given by offices of this type is dependent upon the individuality of the proprietor to a large degree. The advisability of using this source is a debatable question, the answer to which can best be found in experience.

3. Want ads.—This source of supply is widely used and frequently is fruitful of excellent results, especially in obtaining unusually skilled workers.
II. Selection of workers.

(a) Standards of Adaptability.

1. Physical characteristics: A close study of types of men shows that distinguishing traits may be given considerable weight in selection for employment. The nervous type should not be picked for a slow, monotonous job; the person of coarse texture might not be adapted to fine, minute work. Character is more or less evident in the countenance, to be read by the interviewing foreman, who can increase his proficiency in this direction by practice and study.

2. Health and strength.—(a) Determined by Physical Examination: If the company has a medical department it is a wise policy to have applicants given physical examination to determine the worker's measure of health and strength, as a precaution against subjecting him to unfavorable conditions.

(b) Where no medical service is available: Where no medical service is available and the health and strength standard must be judged by the foreman, an estimate may be based on such exterior evidences as:

- Weight in relation to height.
- Carriage and general bearing.
- Clearness of eye.
- Color.
- Alertness of attitude.

The foreman should watch closely for any suspicious condition, such as sore eyes, skin diseases, etc.; should endeavor to ascertain if the applicant has general good health, to avoid subjecting other workers to discomfort or contagion. It is quite important, also, that any serious physical disability be discovered at the time of the interview, in order to protect the company against claims that the disability was incurred in line of work after employment.

3. Mentality.—The foreman interviewer can bring out the general intelligence of the applicant by well chosen questions of such nature that the mental capacity may, to some extent, be judged. A person may be "intelligent" and without much education; he may be "bright" and have little trade knowledge. The questions must be put to the applicant in such a way as to distinguish between trade knowledge and mental capacity, but trade test questions, involving technical facts, ordinarily are sufficient to base judgment upon.

4. Experience.—(a) Trade test questions:

There are questions in each trade and occupation which none but a tradesman can answer satisfactorily. It is a matter of but a few moments to apply such tests, and the grading of employees, or their rejection, can be based on the results of such tests with some certainty. But the questions should be such that a person possessing but a superficial knowledge gained from reading and observation could be detected. Foremen, who are usually skilled in the particular work for which they are hiring men, should be able to compile their own quizzers to good advantage, supplementing these with questioning of the applicant based upon blue prints, tools, and instruments, and pictures of machines and tools.

(b) References: The character of the references submitted by the applicant would throw additional light on his experience, though they are not always reliable evidence of ability, skill or moral char-
acter. One method of giving references is to exchange them direct
from one firm in answer to inquiry from another, covering a work­
er's service record; when received in this manner, a reference would
seem to be dependable. But the recommendation that is given into
the hands of a worker who quits or is dismissed, may be motived by
a desire to "let the worker down" as easily as possible, and may not
adhere strictly to the facts.

(c) Moral character: It is difficult to accurately judge this char­
acteristic without some background, such as verification of references
and present status of the individual and his family.

III. Types of workers.

The terms "skilled," "specialist," "semiskilled," and "unskilled"
as applied to workers, have not been uniformly interpreted. It is
difficult to arrive at definitions that will be acceptable to all, but for
these purposes, the following definitions apply:

Unskilled.—Little or no knowledge of job required, but worker must have
capacity to follow simple instructions. (Example: Laborer.)

Semiskilled.—A worker engaged in a line of work that is not regarded as
a skilled trade. (Example: Brakeman, cement worker, lather, garment
maker.)

Specialist.—A worker engaged in carrying on one or more manufacturing
operations or processes either in a skilled or a semiskilled trade. (Example:
Machine operator, doffer, pocket maker.)

Skilled.—Complete knowledge of job; worker being capable of independent
performance from start to finish on any particular line of work known as a
skilled trade. (Example: Machinist, patternmaker, brickmason, plumber.)

The terms semiskilled and skilled relate to the occupation; to the whole
body of trade knowledge and dexterity involved in such occupations.

A skilled trade is one involving many operations, using much related knowl­
edge of such complexity that a considerable period of study or apprenticeship
must be devoted to its complete acquirement.

A semiskilled trade is any line of work of less complexity and with less nec­
essary related knowledge; a less extensive period of study being required to
master it, so that it is not generally considered a skilled trade.

A specialist may be engaged in a process or series of processes within either
a skilled or semiskilled trade, the term specialist relating to the workman
rather than to the occupation.

(a) Selection of Unskilled.

In the selection of unskilled workers, physical characteristics and
peculiarities of individuals interviewed by the foreman should be
given first consideration.

(b) Selection of Specialists.

If the worker is being hired as a specialist, the foreman should
pay special attention to those qualities that give promise of stability,
endurance, and rapidity of movement. Special efforts should be put
forth by the foreman to ascertain if possible that the applicant is of a
temperament likely to remain satisfied on repetitional work, if the
job in question is of that nature.

(c) Selection of Semiskilled.

The semiskilled worker being engaged in a line that does not call
for extensive knowledge or training, should be chosen for those
qualities that are most outstanding in the way of fitness for the job
in question; that is, if the work involves responsibility for human
life, the eyes and hearing must be up to a certain standard, etc. In
any event the interviewing foreman will apply the tests best suited to bring out the requisite information and then fit the man to the job where he will give the best service.

(d) Selection of skilled.

Selection of skilled workers may be provisionally made with much reliance upon trade questions. It is important, too, that the applicant be drawn out as fully as possible in regard to former experience, length of employment with other firms, and class of work performed in previous jobs.

At this time, when large numbers of wounded soldiers and sailors are being given rehabilitation and reeducation under the Federal Board for Vocational Education, with a view to making them useful in some occupation from which they can gain an honestly earned income, this phase of the employment problem should be given special consideration by foremen and employment managers.

IV. Interviewing Applicants.

(a) Meeting Applicant.

Intervening of applicants by foremen is an interruption upon their other work and because of that the temptation is to be short, impatient, and critical. This tendency will be overcome if the foreman sees the possibilities of strengthening the organization, as well as his own position, by right selection. The outstanding thought in this connection is to create the most favorable environment in which to conduct the actual meeting of the "company's representative" and the applicant. The first impression the applicant gets, if it is of the right sort, will smooth the way for the foreman.

Applicants, as a rule, have a dread of the interview, born of past experiences and contacts. By mentally placing himself in the other's position, the foreman will appreciate the applicant's feelings keenly enough to resist the temptation to gruffness. It seems to be a trait of human nature to take advantage of an applicant's humble attitude by assuming an air of superiority. So it is but a natural inclination against which a foreman should arm himself by introducing those influences which will put the applicant at ease and lead him to feel that he is in friendly hands.

1. Private interview.—Every worker is entitled to privacy when seeking an opportunity to sell his services; his private affairs and experiences are sacred to him and should be so held by the foreman. Privacy of interview is important from the employer's standpoint as a means of encouraging the applicant to frankness.

2. Courtesy.—Courtesy and friendliness toward the applicant are most essential in all interviews. Before he can be put at ease and in a communicative mood, the applicant must feel that he is talking to a person who will judge him fairly and treat him as an equal. If there is nothing open for which the applicant can qualify, tell him the possibility of employment in the future, if it is believed by the foreman that this can be truthfully said.

(b) Elements for Consideration.

1. Kind of job to be filled.—A job specification for employment purposes describes a position which one person is expected to fill, and thus may include several distinct tasks or only one. A satisfactory specification for hiring should have the following divisions: (a) A
general description of the way in which the work is done and of the worker's environment; (b) a statement of the fundamental mental and physical qualifications and the education and experience expected of an employee; (c) a record of the conditions of service such as wages, hours, shifts, vacation, possible lines of promotion, permanency, and other social and economic advantages or disadvantages.

The use of written job specifications is recommended, especially where the interviewing foreman is hiring men for a large number of jobs. But for small plants and single department heads, it is quite probable that the foreman has at his tongue's end details of the requirements for all jobs under his supervision. In either event it is important that the selection of men be made upon a basis of fitness for a particular job, the specifications of which are clearly in mind or at hand during the interview.

2. The right man for the job.—Fitting the right man to the right job is not possible in all cases; the foreman who maintains a high average in this very delicate, exacting, and difficult work is an asset of more than ordinary value to the management. The trial period of employment is a cost to the employer. If the employee makes good on the job, that cost is offset after a reasonable period; but the cost of carrying an unsatisfactory worker through a trial period only to dismiss him as disqualified is a dead loss. Frankness on the part of the foreman toward the applicant is but fair. Knowing the reason for rejection, the applicant can take steps to secure employment elsewhere or to correct his deficiency.

IV. Cooperating with the personnel department.

Personnel management is a science of recent development; it separates and becomes responsible for much of that phase of industry which concerns the human element. In plants where an employment department has been established but as yet no personnel department, employment work is highly developed and centralized, the other functions shown on the accompanying chart, if in existence, being separately directed. Still other employers delegate to foremen whatever of these specialties they have developed, but the trend of management now is to give more and more importance to the selection, development, and welfare of workers.

This chapter would not be complete if the value of personnel management were not pointed out to foremen from the selfish angle of promoting their own efficiency. Taking the most important factor in industry—the human element—to a separate branch of industrial organization to be administered by specialists who can devote all their time and abilities to the intricate problems presented increases the foreman's value to industry by specializing his work within reasonable limits.

Reference to the personnel department chart shown herewith will indicate to the reader the scope and division of duties as developed in the most advanced and comprehensive type of personnel department.

(a) Relations with the personnel department.

In the last analysis the foreman is closer to the workers than the personnel department can possibly get; he is with them during working hours and gets to know their personal likes and dislikes, their peculiarities and preferences. The foreman is the "key" man of
### Functions of the Personnel Department

#### General Manager

#### Director of Personnel

<table>
<thead>
<tr>
<th>Factory Training</th>
<th>Employment</th>
<th>Health and Safety</th>
<th>Working Conditions</th>
<th>Group Relations</th>
<th>Cooperative Activities</th>
<th>Adjustments</th>
<th>General Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) New employees.</td>
<td>(a) New employees.</td>
<td>(a) Educating employees to better rules.</td>
<td>1. Team work and interdepartmental cooperation.</td>
<td>2. Football.</td>
<td>2. Visits to other plants or other departments.</td>
<td>2. Visits to other plants or other departments.</td>
<td></td>
</tr>
<tr>
<td>(b) Present employees.</td>
<td>(b) Instructing employees.</td>
<td>(b) Induction of employees.</td>
<td>2. Team work and interdepartmental cooperation.</td>
<td>3. Swimming.</td>
<td>3. Special instruction and assistance for special groups, as cadets, first aid, etc.</td>
<td>3. Special instruction and assistance for special groups, as cadets, first aid, etc.</td>
<td></td>
</tr>
<tr>
<td>2. Apprentice course.</td>
<td>2. Interviewing and selection:</td>
<td>(c) Medical tests.</td>
<td>3. Shop discipline.</td>
<td>4. Physical education.</td>
<td>4. Cooperation with community clubs, civil defense, and National Red Cross.</td>
<td>4. Cooperation with community clubs, civil defense, and National Red Cross.</td>
<td></td>
</tr>
<tr>
<td>3. Shop instruction.</td>
<td>3. Investigation of past records of applicants.</td>
<td>3. Medical service:</td>
<td>5. Supervision of shop.</td>
<td>5. Operating companies.</td>
<td>5. Arrangements for attendance of employees at meetings of trade associations, organizations of educational associations.</td>
<td>5. Arrangements for attendance of employees at meetings of trade associations, organizations of educational associations.</td>
<td></td>
</tr>
<tr>
<td>(a) Practical shopwork.</td>
<td>5. Rules and information.</td>
<td>(b) Dentist.</td>
<td>7. Relations with labor organizations.</td>
<td>7. Barbell.</td>
<td>7. Arrangements for attendance of employees at meetings of trade associations, organizations of educational associations.</td>
<td>7. Arrangements for attendance of employees at meetings of trade associations, organizations of educational associations.</td>
<td></td>
</tr>
</tbody>
</table>
industry and upon him depends the success or failure of all the various policies and functions built up in the organization to further efficiency and progress. But it certainly is unreasonable to expect the foreman to assume such duties as have been delegated to departments that have been created for special purposes. The foreman makes for the success or failure of these departments to a large extent, dependent upon the vision he has of the possibilities that lie in proper distribution of effort.

(b) Requisition for workers.

The requisition of the foreman on the personnel department for workers should be made as far in advance of the time the men are required as possible, in order that the employment office may get in touch with the right men to fit the requisition as nearly as possible. The requisition should be complete in its description of the kind of workers wanted. When the foreman's requisition is received, reference is had to the specification sheet and the applicants are selected by that measure. That information shown on the requisition should include as much detail as practicable to aid the employment department in selecting the man desired. For the purpose of simplifying record keeping a separate requisition should be made for each man or class of workers wanted.

(c) Follow-up reports.

These are records of each worker filed in the personnel department and periodically submitted to the foreman for information as to conduct and progress made by each employee under him, as a basis for judging the worker's development, progress, and work. The foreman should not judge his men hastily; his initial judgment of a worker is recorded on the follow-up report at the expiration of the trial period and guides the personnel department as to retention, transfer, or dismissal of the worker, unless the foreman has recommended action before the report is asked for. Thereafter, if the employee is retained, the personnel department submits the form to the foreman periodically for a record of his judgment of the worker.

(d) Recommendations for transfer.

The worker is given added confidence in the management if he knows that failure on one job does not necessarily mean dismissal, and that he may eventually be placed in the line of work, or on the job, that satisfies his ambition.

Before making recommendation for transfer on the form used for that purpose, it is advisable that the foreman consult with the personnel department, for advice based upon their records. The matter will be investigated by them. Such an investigation might include a personal interview with the worker and a study of the job in relation to the man's health and strength, besides a reference to his recorded experience for explaining the situation.

(e) Recommendations for promotion.

A man who has just been given a raise that he did not know was coming will suddenly develop remarkable interest in his work; it will increase his capacity, especially if he is told at the same time that the foreman and personnel department think he is deserving of the advancement. The foreman's recommendations are usually sufficient for the personnel department to take action. If a worker is not deserving of a raise or advancement, it is up to the foreman to convince him wherein he should improve.
Recommendations for discharge.

The maintenance of discipline in a department is mainly up to the foreman; it is in the natural range of his duties. But the application of discipline, by way of discharge, demotion, loss of time or pay, should be finally administered by the personnel department to obviate the danger of hasty judgments, applied in the heat of the moment, without due regard for the worker's side of the matter. By this means the foreman is rid of what is undoubtedly the greatest bugbear and hindrance to effective leadership on his part; it safeguards him as well as the worker. Recommendations for discharge should be the very last move on the part of the foreman; he should exhaust all other remedies before breaking a man's connection with his livelihood.

The worker knows that his success or failure in an organization is very largely in the foreman's hands. The making or marring of a man's career is a mighty responsibility, but this is not overstating the extent of a foreman's influence.

Cooperation with the various divisions of the personnel department.

1. Safety department.—Safety work in a plant depends largely upon the extent to which workers are impressed with the necessity of being careful at all times to avoid injury to themselves and others; the foreman should influence workers to read the safety literature, watch the safety bulletin boards and avoid risky haste in performance of duties. The workers respect and appreciate the spirit that prompts the foreman to put their safety above mere speed in the production of materials. In the frequent consultations that safety men must hold with foremen to get their judgment on the installation of safety devices, the foreman should be patient and helpful. The safety men rely upon his judgment and respect his decisions; they are trying to improve conditions in his department for the mutual advantage of the workers and the management.

2. Medical department.—Some firms have introduced a rule that all employees must be examined physically by the medical department once a year to assist in safeguarding them against occupational strains, risks, and disease. If a foreman observes that a worker is looking sick, he should not hesitate to advise him to go to the medical department. As a rule, a faker can not get by the doctors, so the foreman is protected. In cases that call for first-aid treatment, the foreman can cooperate to advantage by giving the injured men the necessary attention that will insure quiet and rest until the medical department can attend to them.
CHAPTER VI.

HANDLING MEN—LEADERSHIP.

1. Inducting new men.
   (a) Getting records.
   (b) Putting men at ease.
   (c) Starting them on their duties.
   (d) Inculcating shop discipline.

2. Adapting men to their work.
   (a) Transfer.
   (b) Upgrading.

   (a) Personal pride.
   (b) Quality of workmanship.
   (c) Shop spirit.
   (d) Adherence to standards.

4. Wages and time adjustments.

5. Discipline.
   (a) Oral or written explanation.
   (b) Persuasion.
   (c) Enforcement.

6. Anticipating dissatisfaction (turnover).

   (a) Mentally.
      1. Fixing attention.
      (b) Technically.
      1. Working problems.
      2. Planning and foresight.
   (c) Stimulating interest.

8. Getting production.
   (a) Preparing equipment and tools.
   (b) Laying out work.
   (c) Enlisting interest of men.
   (d) Appealing to team spirit.
   (e) Appealing to competitive ambition.


1. Inducting new men.—One of the essential qualifications in a good foreman is that he be a leader of men. We all recall how uneasy we were when we first went on a new job; how pleased we were when well received and how discouraged if not well received. Until the new worker is at ease his work will reflect his feeling.

   The common shop jokes, such as sending a new man for a left-hand monkey wrench or for a bucket of steam, are gradually fading away. They are decidedly out of place and where practiced indicate that the foreman has not as full control of his men as he should. Starting a new man right by giving him necessary information will often avoid embarrassing conditions. However, if the foreman is the master of his department, none of this "playwork" will exist. Until new men are fully accustomed to the requirements of their jobs and their surroundings in their department, the foreman must give them close supervision.
(a) Getting records.—If there is no employment office to make records and get the new worker on the pay roll, the foreman will be responsible for it. Care should be had to get the name and personal facts right and make plain entries, whether on cards or otherwise. Such a record is frequently useful and should not be perfunctory. A practical personal record card is appended.

PERSONAL RECORD CARD.

<table>
<thead>
<tr>
<th>Employee's name</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>Race</td>
</tr>
<tr>
<td>Employed for</td>
<td>Sex</td>
</tr>
<tr>
<td>Height</td>
<td>Age</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Physical defects</td>
<td></td>
</tr>
</tbody>
</table>

(b) Putting men at ease.—A pleasant reception lasts long in the memory of any man; especially a new worker. The foreman's good example will lead his men to help in getting new workers over the trying time of starting to work. A little explanation of conditions and statement of what is expected will help.

(c) Starting workers on their duties.—The foreman should assign the new worker to a place and give him work with care. Show him everything he needs to know and see that he gets all the materials, accessories, and help needed. If a green worker, and there is no training department, quiet, unobtrusive instruction will set things going. During the first hours watch progress quietly and be ready to help the worker, whose unfamiliarity with the methods and equipment of the plant will hinder him for a time, no matter how good a workman he may be.

(d) Discipline.—Ability to handle the serious problems of discipline stamps a foreman as successful. If a foreman is "on his job," giving his work and his men close supervision, and in close contact with conditions, the need for enforcing discipline will be avoided. However, when it becomes necessary to discipline a man the foreman should be prompt in impressing upon the one being disciplined where he was wrong, and endeavor to correct him. The foreman's example will be a great help in this regard and a well disciplined department is, as a rule, a well organized department reflecting the example set by the leader.

Foremen have been able to greatly strengthen both themselves and their department by keeping track of new men to make sure that they are on the jobs best suited for them. Some foremen have adopted a scheme of recording in graphic form their daily production, also the amount of work not passing inspection. Such records show clearly
THE FOREMAN.

the progress of these men and indicate where efforts should be directed to improve them. It has been found that where new employees are given such attention and understand their place in the department the need for strict disciplining almost disappears.

2. Adapting men to their work.—If men are found to be at work for which they are suited, a problem is presented for which one of three solutions exist: They may be given other work within the department; or transferred out of the department, or trained. If none of these things can be done, they should be let go.

(a) Transfer.—It costs the company money to hire new employees. But it costs money to keep unfit men also; and the foreman should keep the company's larger interests in mind. To pass a man who is not good enough for his department into another department is bad practice, and reflects upon the judgment of the foreman. Often restless and dissatisfied employees abuse the practice by asking transfers unreasonably. Transfers should not be given aside from regular shop practice, or to "pass the buck." On rare occasions a transfer may be best to settle bad feeling, but disciplinary transfers are dangerous.

(b) Upgrading.—If a worker is obviously not up to the task, either in quality or quantity, the foreman may give him training on the job, either himself or by assigning some good worker to supervise him until his methods are corrected. If there is a training department the man may be sent there. It is well to be sure that the workman is in fault, for sometimes faulty equipment or other causes may prevent full production.

3. Getting loyalty.—If there is one thing a foreman likes in his men it is their loyal spirit. This is not a difficult spirit to instill in his men, if the foreman, realizing how much these men look up to him as their model and reflect his spirit, treats them right. The men want a square deal every time and resent unfair treatment. The habit of "passing the buck" indicates a lack of loyalty both on the part of the foreman and his men. It will be a great help to the foreman if he will endeavor to understand his men. The little difficulties which often occur in most departments are great tests of the ability of a foreman, and the results obtained by his endeavor to straighten them out are good evidence of his qualifications as a leader. The foreman should make every effort to see that justice is given to parties concerned in any difficulty. The foreman who can rise above his personal likes and dislikes and treat every man with even-handed fairness may expect to receive back the loyalty he gives.

(a) Personal pride.—While it may seem unnecessary to refer very much to the foreman's pride in his work yet there are some foremen who give this matter very little attention. Unless a foreman takes special pride in his job and in his man, it can not be expected that he will be very successful. Workmen as a rule are great imitators, and it might well be stated that "as the foremen, so are his men." Often, too, the foreman will have an opportunity thus to better his workmen in this regard, and where they see an example they can readily imitate, results in this connection will be more highly satisfactory.

Where both workman and foreman are proud of the work they are doing, it is quite certain that the loyalty of the men will be of the highest.
(b) Workmanship.—A foreman, as a rule, qualifies himself for his position because of his workmanship. In his daily practice he is called upon continually to see that the workmanship of his men is, at least, up to the standards of his department. Unless he is thoroughly acquainted with these standards and unless he is able to advise his men how they can reach the standards, he may have serious difficulty. Workmen endeavor to turn out a job in as good condition as "the boss." The foreman should always endeavor to hold the workmanship of his department to the highest standard, and make his men proud of the quality of their department's work.

(c) Shop spirit.—Shop spirit depends upon the individual's attitude toward conditions, superiors, and his work in general. It may be developed by the conditions of the industry—if the plant's product stands out from others—there is usually an apparent loyalty which may be intensified by recreational or other mutual benefits.

Meetings of various sorts furnish an excellent medium through which to promote this spirit.

This spirit should be capitalized by a foreman for positive results. It is a cooperation among individuals where these individuals have common interests or are working out kindred ideas.

(d) Adhering to standards.—As a rule, the standards of a department represent the results of much thought and long experience. They not only refer to quality and quantity in work but also as to conduct of the men. Some standards are those of interchangeability, limits, tolerance, time, quality, reputation, conduct, and sanitation. It is only through close supervision that such standards can be attained. In this case, as in others, the example that the foreman sets will play a very important part.

4. Wage and time adjustments.—To the workman there is nothing more irritating than mistakes in his weekly envelope. Those of us who have gone through this experience appreciate what might be said under this heading. Wherever possible, the foreman should exercise particular care to avoid such mistakes. A full explanation is due the parties affected and when this becomes the duty of the foreman he should exercise it with great care, endeavoring to help the man rather than abuse him. It is advisable that this be delicately managed, especially when a workman is leaving the employ of the company. It is more satisfactory to all concerned to have such a man leave with a good feeling rather than the unpleasant thoughts brought about by a time shortage or a mistake in wages.

5. Discipline.—The word "discipline" is formidable to the common mind, having the sound of "punishment." As a matter of fact discipline involves instruction, training, and correction as well as punishment. Maintenance of discipline means sustaining established rules.

(a) Oral or written explanation.—Certain instructions for new employees must be given orally; some may be printed. Some foremen reiterate to employees don'ts rather than the things they should do.

When discipline is required more results can be expected if the man is taken quietly aside for a heart-to-heart talk. A foreman who can make the man see his point of view or that of the management has gone far toward instilling discipline. The question "Do you want to get me in wrong or get other employees in wrong?" will cause an
employee to reflect and he will not need discipline for the same thing a second time.

The disciplining of groups of employees is a harder tasks. Here it may be better to have written notices. Care should be taken to word every notice clearly.

The method of posting or distributing information deserves a word. A bulletin board in a good place which attracts attention without blocking traffic is the best way. On this board should be put typed or printed notices.

(b) Persuasion.—Probably the most effective method of getting discipline home to the individual is by persuasion. Every man is subject to persuasion. If the superior has the employee’s respect initially, his argument will be the more effective. The quiet exercise of the foreman’s authority will have a lasting effect. The man who is disciplined will publish the fact by his action as much as by words. Thus respect toward the foreman is increased.

(c) Enforcement.—Enforcement of discipline implies insistence upon proper ways of doing things where digression from the established way has been made by an individual or group. The foreman who scrupulously adheres to standards, will have little difficulty in enforcing the necessary discipline for his department. The foreman inclined to be slack will experience all sorts of petty difficulties. He has less control over individuals and groups. Control of departmental situations, big and little, means control over the individuals—and the department as a whole. The breaking of ordinary rules and regulations calls for attention on the part of the foreman. Take for example two classes—the gossip and the shirker. A minute or two occasionally does not call for notice from the foreman. But if these men day after day lose a half hour from production, it is time to deal with them. The offense is noted the first time but should not always be brought to attention. If rope is given these men they will “hang themselves.” After two or three times the foreman should take them aside and show them how much they are losing to production. If then they do not mend their ways other, stricter methods must be adopted.

6. Anticipating dissatisfaction.—A dissatisfied workman is a bad element in any department. His influence upon his fellow-workmen is harmful and the effect upon the production of the department soon noticeable. The foreman can avoid embarrassment in this direction by keeping in close touch with his men and remedying the first signs of dissatisfaction. He should give the matter due consideration, for the dissatisfaction may be due to working conditions or wages or the attitude of employees toward each other, and correction of conditions, not of men, be needed. He should exercise cool judgment, extending every effort to make proper adjustments and avoid the difficulties that usually result where dissatisfied workmen become numerous in a department.


(a) Mentally.—The foreman’s close contact with the workers gives him unusual opportunity to know and encourage them in their work. He should deal with them according to their dispositions. Some need encouragement, kindness, gentle methods; and others firmness
and strictness. Harshness should never be used unless absolutely necessary. Let the workers know they are expected to make good and that they may count upon utmost help from their foreman. Many a man, discouraged by his inability to make the progress he would like, owing to bad material or conditions beyond his control, has quit with the remark, “What's the use, nobody takes any interest in this job.” A word of encouragement and help from the foreman would have saved him to the company and redoubled his energy.

(b) Technically.—(1) Working problems: Let the workers understand that you desire to help them, and prove it. If a man spoils a job, don't let everyone about know it. Set to work with him, analyze the situation, find the cause of the spoilage, and show him how to overcome his weakness. Encourage men to bring their technical difficulties up for advice and to report spoiled work and mistakes. Make an example of those who willfully let bad work go through to be discovered later, and let the cause of their discharge be known to them and the rest; but those who are “square” should be given every possible help.

(2) Planning and foresight: Even in little details, such as getting tools ready before time, placing them most conveniently, etc., men delay themselves often by not taking thought. Quiet advice will help them materially and increase their output and contentment.

(c) Stimulating interest.—Men are interested in other things besides their weekly envelope. We have but to recall our own experience in this to convince ourselves that other workmen are equally anxious for an opportunity to express themselves or “get somewhere.” Many workmen are endeavoring to improve themselves either through home study or evening school work, and if a foreman has close acquaintance with his men he will very shortly discover this. A wise foreman will recognize these interests and endeavor to further stimulate them by helpful suggestions. In some factories foremen have resorted to friendly competition between their men and have appealed to their spirit by having another department enter a competition where the weekly production or the weekly spoilage of one department compares with another. In some cases a score board has been used on which to post these percentages, or a shop paper is employed.

8. Getting production.—The main function of a foreman is to get production. His ability to get it is the standard by which the management judges of his efficiency. Production is primary. Everything else is subsidiary.

(a) Preparing equipment and tools.—When a production order is received the foreman should check up everything to be used for the order. Gages and tools must be tested to see if they will answer for the prescribed limits. Many factories have centralized tool cribs for care and upkeep of tools. Others are spread about larger factories for the convenience of workmen in the various departments. Some plants hold their foremen entirely responsible for the tools. Where tool cribs are used, the man is generally given a certain number of checks which he exchanges at the crib for the tools he must have and he is held responsible for such tools until they are returned.

It is customary for a department to keep a finished specimen of a part for a sample, which may be used as a check against a set-up.
The weak points which might show up in a finished product should be indicated to the workman. Machines should be properly repaired against the arrival of material. Every piece of equipment to be used should be tested and inspected.

(b) Laying out work.—Every foreman lays out work for employees in some way. A foreman will consider the job that is to be done, then will turn toward the most likely man to do the job. He will estimate the mental grasp of the man to handle the new work; his technical skill; the capacity of the tools and machines at hand.

Proper distribution or laying out of work will enable the foreman to visualize his department as a whole. It will show him the strong and weak points, and he can strengthen the latter. It will save the loss of time between jobs and keep production flowing. It will make him always seek the proper man for the proper job.

(c) Enlisting interest of men in production.—To enlist the interest of the individual workman the foreman should assure himself that the workman understands his job. A detailed explanation may be necessary, especially if the job is a new one. Not only must his functions be in mind, but also a proper knowledge of the necessary equipment he works with. Sometimes pacemakers are advisable where a group of men are on the same work.

While it is not always advisable, the foreman who can give work to men who have an interest in certain types of work can generally depend upon production from such men.

A foreman does not, as a rule, present often enough nor clearly enough to his subordinates the primary reason why he must have production; that is, so his department will make money. If his department makes money, naturally the men will.

(d) Appealing to team spirit.—Team spirit is the working together for an objective for the benefit of the whole. One of the outstanding features of team spirit is the constant interest each man has in seeing that his own part is well performed as well as watching that the "other fellow" keeps up to scratch.

The goal they are striving for should be set up whether it is real or intangible. Whether it is a tangible prize or a name or record to be established should be clearly outlined. The foreman can appeal to this spirit. He should make it plain that increased production is the material gain, and that while the group or department rather than any individual is the profiter from the prestige gained, as in all teamwork, the individual will share in the honors.

(e) Appealing to competitive ambition.—To a man of normal mind and physique, records arouse ambition to excel. A record, his own or some one else's on the same type of work, can be presented to a workman and the foreman might ask if he can beat it. He will usually try hard to do so. With two individuals working on the same work—as far as possible with all things equal—friendly rivalry can be started. But it is better when several are at the same work. Incentives may take the form of prize or praise—something of material worth or something esteemed because it represents the attention given to accomplishment. Medals are sometimes used or cups suitably engraved.
9. Discharge.—When it becomes the foreman's duty to discharge a workman he should make sure that he has before him all facts which warrant this discharge, and he should make it clear to the party concerned why he is being so discharged. Every workman is entitled to this. The practice of discharging workmen carelessly and without explanation is very extensive and harmful. In large factories where the discharged person must clear through the employment office, and the foreman is obliged to furnish complete reasons for recommending discharge, this is somewhat checked, but in most factories the power lies in the foreman.

It is a question whether all foremen appreciate what it means to habitually discharge men upon the least provocation. This hampers production; it necessitates that the discharged man be replaced and a new man broken in on his job with the possibility of the same procedure being repeated. If the foreman could but realize the effect of this practice upon his personal success, it is quite certain that he would endeavor to avoid the practice.
CHAPTER VII.

HANDLING MEN—TECHNICAL KNOWLEDGE.

Technical knowledge.
1. Tools.
2. Equipment.
   (a) Theory of materials.
   (b) Trade practices.
4. General technical knowledge.
   (a) Design.
   (b) Mathematics.
   (c) English.
   (d) Trade literature and text books.
   (e) Literature pertaining to employment.
   (f) Visiting other plants.
   (g) Forms and records.

Technical qualifications.

There is a difference between technical and practical qualifications: Practical qualifications are absorbed through experience; technical qualifications are gained through study, investigation, and research. Some foremen have a natural technical inclination and acquire readily, others must study hard. The foreman should appreciate the value of the technical qualifications of his trade, knowledge of tools, equipment, records and materials. He then will be better able to explain and demonstrate to his men, and will gain their respect and loyalty. The foreman will gain in ability to handle men, will increase his resourcefulness, and the result will show in production.

1. Tools.—There are many kinds of tools in industry, each to be selected, arranged, used and cared for. There is much for the foreman to learn in a technical way in order to get the best out of each tool that he must use or instruct others in the use of. There is capacity, endurance, adaptability, simplicity, accuracy, materials, and much else that enter into the make-up of modern tools, with which the foreman should be familiar. Study of catalogues and trade journals will help in getting more knowledge of the relative qualities and usefulness of tools.

2. Equipment.—All necessary appliances are classed as equipment. It is just as important that the foreman know the proper use and care of equipment as it is of the tools or materials. However, elements entering into use and care of equipment are often different than the requirements of the tools. The knowledge gained by study will make possible proper selection, arrangement, use and care, etc., and this study should be made with a view to improving production, prolonging the service, making recommendations to the management and advising his workers as to proper use and care. The foreman knows much of the practical side of equipment, but study of the
technical side through text books, the training school, the assistance of the management and the cooperation of the equipment manufacturer will broaden his viewpoint.


(a) **Theory of materials.**—The foreman should seek to know all about the materials he works on, even to their very source; where the material may be mined or grown, or combined or extracted, their derivation and the component parts of which they are made, and also the processes upon them leading up to his work. As far as possible, this information may be imparted to the workmen to arouse their interest. He should learn the best way to select and handle his material; the most modern methods of working and the “why” of every operation in his department.

(b) **Trade practices.**—Since the beginning of industry the workers have established methods of accomplishment. These methods have been accepted by executives and put into common use throughout the industry and are generally known as trade practices.

In recent years, through the development of the technical elements in industry, there have been many radical changes in trade practices. Some have been discarded, others enlarged upon, and new standards of accomplishment have been set up, multiplying many times the results formerly attained. The foreman should keep pace with developing trade practices. His subordinates prefer the modern idea, the modern foreman and the modern factory. They feel that advancement is possible where the latest trade practices are accepted and applied; they are more dependable.

4. General technical knowledge.

(a) **Design.**—The foreman should know how to express his own ideas by means of a drawing. If he has an inventive or creative mind, a knowledge of design will be materially helpful to him. Drawing is shop language; he conveys his ideas to others by means of sketches and he may grasp the thoughts of others expressed by a design.

As design is a part of most industries, the foreman will be more capable of directing the work of others by fortifying himself with this knowledge. There are books upon design in every industry; and both public and private schools teach applied design.

(b) **Mathematics.**—The foreman should familiarize himself at least with the mathematics necessary to his work. He should thoroughly master the various measuring and testing devices which he may have to use. He should be able to make calculations for himself and his workers so as to check up his tools, materials and product. The textbook of his trade is usually complete with all mathematics.

(c) **English.**—A knowledge of English is essential so that a foreman can properly interpret his orders or impart orders to his workers, either spoken or written. The ability to use good English will be a means of preventing mistakes, and for one having authority to give orders it is obligatory that such orders be clear and concise. If deficient in this regard it is well to take a course in English in some good school.

(d) **Trade literature and textbooks.**—From trade literature the foreman gains a knowledge of the new methods through up-to-date
discoveries and the various new combinations of materials in industry; he sees the advertisements of equipment and materials and notes their advancement and claims made for their superiority; he also learns of the activities of his industry and the general trend of events.

The textbook is a storehouse of general information on the application of methods to be used by the foreman in his daily work, and suggests solutions for many of the production troubles a foreman may encounter.

Where the management neglects to do so, the foreman should provide himself with the best of trade literature and textbooks. Articles of particular interest should be extracted and indexed for reference, advancement being now too rapid and complex for dependence on mental notes. Systematic study of trade literature and textbooks is a means for the foreman to upgrade himself.

*(e) Literature pertaining to employment.*—This is a field from which every foreman can get valuable information. Managers now appreciate the necessity of systematic and improved methods in employment, and the foreman should begin to learn the teachings of this field. To successfully manage an industry to-day requires an understanding and an appreciation of human relations. The foreman is the medium of expression of this understanding and appreciation from the management to the workers; hence the necessity for him to have knowledge on this subject. Scientific employment is based on experience; records have been kept, results established, and the foreman should know how to apply the principles so as to scientifically fit a man for his work. The foreman will gain an appreciation of the importance of his own place in industry and he will see how all of these factors are resulting in increased production.

*(f) Visiting other plants.*—This opportunity should be requested of the management. Where the privilege is not offered, a well-defined line of the object of the visit should be prepared. A letter of introduction stating briefly this object and extending an invitation for a return visit would be good diplomacy. A record should be made of the findings. The foreman will find a properly conducted visit of great educational value to himself, usually permitting the study of improvements in production methods, tools, capacities, and machines.

*(g) Forms and records.*—In every department certain record forms are used. The “why” of every printed form of his own department and a general knowledge of all the forms used in the factory should be learned by the foreman; where they begin, their progress, their function and disposition. He should appreciate the importance of records and how other departments depend upon his handling of them. The foreman should have a complete record of what is going on in his own department, to determine his department standing. A record check on every man will assist in bringing men up to a higher standard, and enable the foreman with justice to give increases or promotions. A record will also show what he can promise his management in way of deliveries. The ability to produce for tomorrow is based on the records of yesterday. Production and cost records are very essential to success. There should be tool and capacity records and also capacity records of the employees. The ability to keep records is a valuable technical qualification.
CHAPTER VIII.

DISCRETIONARY POWERS OF A FOREMAN.

1. Rating.
2. Interviewing applicants for employment.
3. Hiring men.
4. Discharge.
5. Recommendations for discharge or transfer.
6. Investigation to determine responsibility.
7. Recommending or making promotions.
8. Leaves of absence.
9. Encouragement of suggestions by employees.
   (a) Personal attitude.
   (b) Suggestion boxes.
11. Delegating responsibility.

Beside his regularly assigned duties relating to production, the foreman has powers which he may exercise or not at his discretion. Some of these are briefly referred to. In many instances, wise self-control suggests sparing use of such authority.

1. Rating workers.—The foreman is often vested with discretion in provisionally assigning a wage rate to a new employee, subject to correction upon experience and demonstration of competence. This should be done with caution. If set too high, it may be necessary to let the worker go eventually through dissatisfaction; if set too low, injustice may result. Perhaps it is better to name limits at first and watch the way the worker conducts himself before fixing the actual rates and reporting them.

2. Interviewing applicants for employment.—Most foremen still have this study, although many large establishments tend to turn this worker over to their employment departments. Where the foreman has to interview, he should exercise tact, be kindly and reasonable in his inquiries. The company cannot afford to have incompetent men hired; and still less to let a good man get away. A little study will develop a stock of trade questions which will find a way into the applicant's real knowledge of his occupation. Find where he has worked, and what he did; what grade and kind of work he was on. Study his physique and character. Chapter V gives much helpful information on this subject.

3. Hiring men.—When the foreman wishes to protect his force against anticipated demand, he may have to decide whether to hire more men or not. If he knows the capacity of his force and the coming demand he can form an estimate.

4. Discharge.—If there is a question of discipline, and discharge seems necessary, every fact should be studied before action. Discharges should not be made in a temper, but upon sound reasoning
and the worker should be given full and fair explanation. It is usually cheaper to give the man training than to let him go.

5. Recommendations for discharge or transfer.—Such recommendations should not be made hastily. It does not help a foreman's record to have a large turnover in his department.

6. Investigations to determine responsibility.—When matters slip in the department, the foreman must first find what caused the fall-down. There may be spoilage, machine breakdown, or tools damaged; delays in deliveries or handling of work or bad blood among the workers. Quiet investigation, without overbearing manners or threats of punishment, will sooner get to the bottom of the trouble. It is easier to blame somebody; but that will not prevent another holdup, and cool study may raise the general morale and make the incident a real benefit. After going into the subject in this way the foreman will often find it better to let matters drop and use his discretion to promote peace.

7. Recommending or making promotions.—In nearly every industry some rules exist for promoting a worker or raising his wages. The element of time is commonly important. Too frequently foremen are accused of having "favorites" in making or recommending promotions. When a worker does a good job, note it; and give him something bigger when the chance comes. Observe the man whom the other workers ask for advice; he is a leader, and fit for larger work. If the discretion of initiating promotions is wisely used, it will build up a fine spirit of emulation and loyalty both to foreman and company.

8. Leaves of absence.—If men are granted leaves of absence when their requests are reasonable, there will be less temptation to bluff or give "fake" excuses for absences. The habit of taking a few days off at frequent intervals, when once developed by a considerable number of men in a department, is difficult to break up. The acceptance of made-up excuses fosters such a habit. It is perhaps equally bad, however, to treat all requests for leave of absence with suspicion. Even the most conscientious man will soon feel that since truthful reasons are treated no better than "fakes," he might as well make the most plausible one he can think up. So far as possible the foreman should acquaint himself with the habits and home conditions of his men, and treat their requests with knowledge and consideration. Annual leaves of absence should be granted if possible. Men have a better opportunity then to recuperate from past efforts and to prepare themselves physically for future labors.

9. Encouragement of suggestions from employees.

(a) The personal attitude.—One of the surest means by which a foreman can arouse the interest of his workers is to encourage their suggestions and cooperation in the work. It develops initiative and stirs up ambition. When assigning jobs ask the suggestions of competent workmen. Discuss these suggestions impartially and when the method has been selected show the workman what determined the choice. Suggestions having no value should be summarily rejected; but show the man that his interest is appreciated and make clear to him the reasons making his idea impracticable.

(b) Suggestion boxes.—Some companies place suggestion boxes in their departments and give rewards for ideas when accepted.
Whether ideas are brought out in this way or by his own attitude, the foreman should do his best to see that the men who make practical suggestions are properly rewarded.

10. **Preparation of competent understudy.**—When a foreman trains a man competent to take a foreman's position he paves the way for his own promotion and renders a valuable service to his company. The man selected to be trained should be a competent workman, reliable, a good personality, well liked by his fellow workmen. Give him opportunities to work in different sections of the department, so he may become familiar with all the work of the department, and learn to understand the qualifications and peculiarities of men. On occasion put him in temporary charge of several men and hold him responsible for their work. Accustom him to plan ahead. When the foreman has business outside, let him have charge of the department.

11. **Delegating responsibility.**—The foreman is usually held responsible for all the operations of his department, in detail. It is impossible that he personally watch every worker, check up every record, etc. Therefore, much of the routine portions of the work must be assigned to subordinates. The foreman's success will depend very much upon the wisdom with which he selects men to discharge these small parts of his general responsibility, and the care he uses in showing them how to discharge their duties to him.
CHAPTER IX.

DUTIES OF A FOREMAN.

1. Assignment of men to tasks.
2. Supervision of workers.
3. Instruction of workers.
4. Instruction of apprentices.
5. The training department.
6. Maintenance of order and discipline.
7. Enforcement of company policies.
   (a) Safety.
   (b) Sanitation.
8. Promotion of application and interest.
10. First aid.
11. Inspection of product.
12. Care of equipment.
13. Repairs.
   (a) Time records.
   (b) Production.
   (c) Spoilage.
   (d) Other records.
15. Requisitions for help.
16. Requisitions for supplies, materials, and equipment.
17. Reporting irregularities.
18. Reports on production.

The duties of a foreman vary with the size and type of his organization. In the smaller shops the foreman's work includes a great many duties which in larger organizations would be assigned to others. In some organizations the duties of management are distributed and the foreman may attend solely to the instruction of employees, with no executive duties. In another type, the instruction is intrusted to a separate department, and the foreman's duties are purely executive, while in still another organization the foreman is required to combine instruction with executive duties. The function of a foreman is to assume whatever duties the management may assign to him. Many a foreman has gotten himself into a great deal of trouble by trying to instruct the manager as to the correct form of organization and method of conducting the business, while neglecting those essential duties that were assigned to him. The following list of duties will apply generally and are, we believe, the fundamental duties of foremanship:

1. Assignment of men to tasks.
2. Supervision and instruction of workers.
3. Inspection—quality and quantity of work.
4. Encouragement of workers.
5. Movement of work and materials.
6. Care and supply of tools and equipment.
8. Discipline.
9. Maintenance of cleanliness and order.
10. Morale—Creating the proper shop attitude or spirit.

These principles will apply to any form of industrial organization. In some cases it may be necessary to refer only to some of them, owing to the narrowing down of the range of duties of the foreman. But in whatever type of organization the foreman may find himself, we believe this list will include his duties.

1. Assignment of men to tasks.—Keeping the workers supplied with work, getting continuous operation, is one of the first duties of the foreman. Anything that interrupts continuous operation retards production and cuts down efficiency. To accomplish this the foreman must be systematic, acquainted with the capacity of machines and workers, and must plan work ahead of the workers. He should habitually make notes and refer to them, and keep records to know the needs of his department.

Let the foreman take a quiet walk through the shop at the day's end. It will reveal to him many things that he would not otherwise see, and will show him just where supplies will be needed on the following day. If necessary, he can order materials, make notes to his assistant to get tools ready, and arrange to have necessary parts moved where needed. Some foreman may resent the idea of staying after the whistle blows to do this. But if he tries it for a while, he will find himself more than repaid by the peace of mind which he will have through the day. If he simply awaits developments from hour to hour, he will find employees continually and unexpectedly running out of work and he will be unprepared to tell them what to do. To know exactly what to do next is of invaluable help to the foreman, and its effect on the morale of the worker can not be overestimated. Where there is a planning department, this work of the foreman is much easier, but, nevertheless, he should have his work planned ahead by looking over what has been laid out by the planning department and, if necessary, call their attention to the fact that some of the men are going to be out of work unless they get busy. There is a tendency sometimes on the part of the foreman to assume the attitude that it is up to the planning department; "Why should I trouble my mind about it?" That will not help the foreman, the planning department, nor the company. If the planning department is falling down in the matter of providing sufficient work, the foreman should not hesitate to prompt them and to fight vigorously for a sufficient supply of work to keep his men going.

If the foreman can not stay a little while after hours to do his planning, he should set aside a definite time toward the end of the day for this work and arrange to have the supervision of the department taken care of by an assistant or some one assigned specially for that hour. It is very important that he do this planning at least a day ahead, and when he leaves the shop at night he should be able to say to himself: "Well, I have everything ready for tomorrow's work."

To make certain that the workers do not run out of work unexpectedly, it is sometimes advisable to make a rule that each employee shall notify the foreman one hour before his job will be finished.
This will give the foreman a chance to see that the next job is ready. This has been tried with good success.

2. Supervision of workers.—Supervision is one of the chief functions of the foreman. In doing this he must study the individual capabilities of the workers; keep records of their behavior and productive ability; take note of any special qualification or characteristic; keep a record of these qualifications and the percentage of efficiency of each employee. Every foreman should have a card index with a card for each employee. (See Chapter 6). Wherever possible, it is best to handle employees individually rather than en masse. The only real contact which the management has with the individual employee is through the foreman. This intimate knowledge of the foreman will enable him to rightly judge the capacities and capabilities of each worker and to more intelligently supervise the distribution of work to each employee according to his or her ability.

3. Instruction of workers.—Instruction involves many things, such as having material so placed that it can be handled by the worker without too much effort; proper handling of machines or tools; clothing; safety; seeing that the job is being done in the right way; observing and advising regarding quality of work; noting quantity, and instructing the worker how to overcome low production; and many other elements entering into the particular processes being supervised.

To accomplish this the foreman should make an outline of his duties and, as far as possible, schedule his time for each duty.

Some foremen continually ramble about the shop but know no more when they get through than when they started, having no definite idea what they are looking for.

The wise thing is to make a list of points for supervision and instruction, in numerical order after the employee’s name. Observe, question and instruct employees upon these points, making notes for reference. The following outline will illustrate:

<table>
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<tbody>
<tr>
<td>Safety of worker........................................O. K.</td>
</tr>
<tr>
<td>Handling machinery.....................................Needs instruction.</td>
</tr>
<tr>
<td>Tools, are they sharp?..................................O. K.</td>
</tr>
<tr>
<td>Is work placed properly?...............................Bench too low; worker has to stoop to pick up parts.</td>
</tr>
<tr>
<td>Using right methods?....................................O. K.</td>
</tr>
<tr>
<td>Quantity of work........................................A little behind; should have 100 pieces—has 75 pieces. Reasons—belt slipping. Have it corrected.</td>
</tr>
<tr>
<td>Quality of work..........................................O. K.</td>
</tr>
<tr>
<td>Condition of machine...................................Bearings getting loose; report to machine repair man.</td>
</tr>
<tr>
<td>When will they be ready for new job?..................About 4 p. m. to-day; get after more men.</td>
</tr>
<tr>
<td>Any trouble or difficulty?..............................No.</td>
</tr>
</tbody>
</table>

When the foreman has toured the shop, making observations and asking such questions of each employee, he will have definite information not obtainable in any other way. If several such trips are made each day, he will obtain a good working knowledge of the condition and needs of his department. If the department is too large to get
around in one day, he should have this done by his subforemen and get the reports from them.

This should be in addition to the reports of subforemen who get around their particular sections several times a day. The subforemen help but can not replace the foreman’s personal contact.

4. Instruction of apprentices.—Unless there is a foreman of apprentices, or apprentice instructor, the foreman will be responsible for the apprentices within his department. The future of the trade depends upon the thorough instruction of these young men, and the foreman should not neglect them. The best workmen in the plant should be interested in helping them to learn the successive operations of the plant, and the foreman should be their friend. It is especially important not to drift into the habit of using these boys on one operation because they can do it pretty well, and so deprive them of the broad knowledge of the trade, to get which they are accepting lower pay.

5. The training department.—If there is a training department in the organization, the foreman will be relieved of the duty of instructing the workers as to the right way to do the job. That will all be outlined and the workers will be trained and instructed by that department. The foreman who has the cooperation and help of a training department is very fortunate and he should give his hearty assistance and cooperation to the training director. They should be real friends, for each needs the other’s help.

The foreman in his daily rounds of observation should see among other things that the methods of doing the work laid down by the training director or instructor are being followed.

He should remember also that no man’s word is final as to methods of work, should encourage the workers to make suggestions, and see that such suggestions are credited to them and that the superintendent or manager is told that the new idea emanated from the employee in question. If the management is wise, they will see that the employee’s effort in this respect does not pass unnoticed. The real mine of knowledge of the processes of industry is in the workers themselves.

Of course any new or improved methods of doing any particular job that should be suggested by an employee or by the foreman should pass through the proper channels, and if there is a training department it should be turned over to them to be put into effect by instruction.

If there is no training department or organized training for his department, the foreman should advocate the introduction of one, or ask permission to assign the work of training and instruction upon working methods to some person in the department. Failing in this, he will have to give as much attention to it as his many duties will permit.

6. Maintenance of order and discipline.—Rules and regulations should be established, and so far as possible they should be rigid; workmen should be instructed and trained to act in accordance with these rules. Close supervision and personal appeal will assist in maintaining order and discipline. The foreman should not only instruct the beginner, but should improve the older men with a view to raising the standard.
A foreman maintains order in his department by his own example. The foreman’s desk should be strategically located, as much depends on his workers knowing his advantageous position. Workmen should be encouraged with the idea of the best department. Good judgment should be used in the enforcement of rules and regulations. Most rules have an exception, but the exception should never become the rule.

7. Enforcement of company policies.—The policies of a company represent any definite course of action which they may adopt and follow. They may be written or unwritten. They can be made arbitrarily at any particular time to establish a precedent. They may involve the foreman and the workers. They need explanation in the beginning and continuous follow-up to maintain.

(a) Safety and sanitation.—The company policy regarding safety and sanitation thrusts a duty on the foreman for their enforcement. The importance of safety and sanitation can not be over estimated. The foreman has the principal responsibility in this matter. Safety measures are necessary because of carelessness and carelessness is a habit that requires diligent instruction and watchfulness to overcome. The foreman must insist on the observance of the safety and sanitation rules and should provide penalties for some violations and bad examples to avoid repetition. Constant correction is necessary. “A careful man is the best known safety device.”

8. Promotion of application and interest.—The foreman has a duty to interest the worker so as to get his best efforts. Some knowledge of the materials imported to the worker, a discussion of the methods of the work, or a request for suggestions to improve the processes should awaken an interest and cause the worker to give his best thought and action.

9. Knowledge of emergency policies.—First aid, plant provisions for medical treatment, and any information required to get nurses, doctors, ambulances or hospitals, should be at hand. In the event of accident, let him render first aid immediately and as quickly as possible remove the injured. He should notify the proper parties at once to render additional treatment. Turning back to his department, the foreman should attempt to analyze the accident to find the cause for it and then remove the cause. A report in writing should be rendered to superiors both on the accident and findings thereon. Then let him advertise and post information on the accident, its causes, and corrections made to overcome the possibility of recurrence.

Acts of violence sometimes occur within a plant. A foreman should use his authority so far as possible at such a time. He should call on the trusty men in his department for support and on his superiors. If beyond the limit of his powers, the plant police should be called in and, if necessary, steps taken to secure the city police. Company property should be protected. A search for causes and their removal should take place. A report on the case and his findings should be made to superiors and finally discipline exacted and punishment given.

The sudden emergencies which arise call for some prethought and knowledge on the part of the foreman as to steps he would take in the event of the breaking out of one of them. For example, what
should the foreman do in case of fire, of failed power, of accident, or of acts of violence? There are steps which he should have well in mind beforehand, preparing himself for the emergency and those steps which he would take at the actual time of emergency.

For a case of fire, he should organize a fire crew. The foreman should take care that liberal provisions are at hand to fight fire—not only that the law is complied with but more than complied with. Fire drills should occur with frequency to acquaint the employees with signals and exits and the organized fire-fighting force. Frequent inspection of fire-fighting equipment should be resorted to. It is most important that the foreman should remove the possible causes of fire within his own department and make frequent inspection of these places where fire may arise. There should be proper places for everything—waste, papers, and other materials which are inflammable.

With his organized fire crew the foreman should have frequent drills upon the fighting of fire. In the event of fire breaking out he himself should preserve the irreplaceable records, plans, patterns, etc., which mean so much to the management.

If power fails it should be determined immediately how long the power will be off. The force of employees should be directed to other work, if possible within his own department, if for a lengthy period to other departments. The foreman should determine whether the the trouble is local (within his own department) or general (including all departments). Confusion should be eliminated. Definite work instructions should be given. The foreman should acquaint himself with starting and stopping methods of all power-driven apparatus and if possible, see that appliances are installed for only a portion of a shutdown so that the whole of his department may not be affected.

Before accidents happen the foreman should study his department for hazards and post warnings about them. He should make corrections and remove causes. As in fire he should use his organized force for handling this emergency. Again his equipment for taking care of accidents should be at hand.

10. First-aid knowledge.—First aid is the ability to render relief to one in distress from accident. On the foreman's part it necessarily should make him a student of the methods in his department so that he can learn the possibilities for accident (minor or large) therein and learn how to acquire first-aid knowledge and how to use it.

The foreman should appeal to his superiors for all first-aid knowledge which he can use and also ask for equipment to render first aid. There are periodicals printed mainly on this subject which can be secured for the asking. The plant physician should be consulted to give opinions on the rendering of particular kinds of aid for accidents that the department is subject to. Whenever possible demonstration should be given so that not only the foreman but the men under him may acquire sufficient knowledge to render assistance whenever it is necessary. The plant physician or the manufacturers of the equipment have this knowledge and they should be solicited for it. Safety society movements are growing, and in these the foreman can acquire much valuable information. Then there are the lectures on the subject and the committee on which he can serve from which he can become an active educator.
11. Inspection of product.—In most modern shops inspection is made a separate department. No matter what system may be used, it is up to the foreman to see that the work is turned out correctly and in sufficient quantity. He is the man who will be held responsible for bad work. The best way to accomplish this will be by making inspection as to quality one of the points on the supervision sheet outlined under the heading of instruction of workers. As he makes his regular tours of supervision he will examine the work of each worker by taking the last piece and one or two other pieces and trying the gages on them or checking them up with the blue print. In order to do this properly he must be thoroughly acquainted with the tolerances or limits allowed and should try to keep as well within them as possible. If he finds the work is running off size or finish he can stop the job right there and give the necessary instructions to have it corrected.

12. Care of equipment.—The foreman should see that machines are kept in first-class condition, that they are well oiled, that belts are tight and properly cared for, and that exposed gears or dangerous parts of the machines are properly guarded. It is the foreman's business to know the capacity of each machine, and be able to intelligently estimate the time required for a given amount of output from any machine in his department. In making his inspection trips, the foreman should note the condition of each machine, of the tools, and see that the precautions that avoid repairs are not overlooked. An ample supply of spare tools and accessories should be on hand, and arrangements made to keep all tools in the best condition. If men have to wait their turn to get the use of a tool, low efficiency is bound to result. System in caring for the tools and equipment is the only assurance of success.

13. Repairs.—When inspection or accident develops need for repairs a survey of the broken tool or machine should be made, and the whole condition of the piece be considered. It may be cheaper to buy new than to repair; more modern machines may exist and offer higher output at lower operating cost, or greater versatility in use. If possible, repairs should be made in advance of need; and it often is easy to do this by taking forethought. If, as is usual in large shops, a separate department is responsible for repairs, the foreman should notify the repair department at the first sign of deterioration and give them time to arrange for adjustment and repair without interfering with regular production. It may be necessary to make such repairs at night or during other shutdowns, so advance notice is required. Records of the cost of repairs should be kept; and if a machine costs too much to keep up the fact should be brought to the attention of the management.

14. Records.—More and more employers are calling upon foremen to keep records for their guidance. These records are the charts that keep the business vessel off the rocks and must be dependably accurate. Under no circumstances should the foreman neglect them or fill them perfunctorily, but he should not be a slave to them; in most cases a clerk can do the actual work under his supervision.

(a) Time records.—Daily time records supply data for the pay roll. Mistakes will soon get the whole department by the ears, whether under- or overpayments result. If an assistant keeps the
time, see that he is careful and does it on time instead of relying on memory.

(b) Production records.—Up-to-date reports showing how the department is coming on and admitting comparison with previous work sometimes are embarrassing, when the department happens to fall down; but knowing where production stands in time may save a schedule. It never pays to have to strain everything to make good at the last minute, and careful production records will generally enable a foreman to avoid rushes due to department failures.

(c) Spoilage records.—Material is charged to the foreman’s department when sent him. If spoiled it must be shown on an appropriate record, which should indicate who spoiled it, how much and how. It should also show what was done to salvage it and the final disposition of the material. A clear, concise record of spoilage and salvaging will help the foreman to cut this waste down and improve the department’s record.

(d) Other records required.—Some of the records called for are: Personal records of workers (which the foreman should give personal attention as elsewhere suggested); progressive individual production records; wage increase records (often entered on the personal record card); stock records; material and supply records; equipment capacity records; perpetual inventory records. Some of these relate to performances of tools, some to production and ability of workers, and some to the company’s investment. They are all valuable to the company, and the foreman who is known to keep them well is highly regarded by the management.

15. Requisitions for help.—A foreman will requisition the employment office when he needs additional help, or get help himself. The manner of requisitioning depends on the company’s methods. Usually he makes out a requisition on a form, which states the type of worker wanted, the time wanted, and the kind of work to be done. Sometimes restrictions as to physical and mental requirements or other personal facts may be appended. If the foreman will help the employment department to understand fully the kind of worker wanted and what such worker should know, it will improve the service the employment department can give. It is never wise to hold requisitions until the last moment. Better to send in requests several days in advance, if at all possible, stating the time the workers will be wanted. The employment department will be more likely to find the right people.

16. Requisitions for materials, supplies, and equipment.—It is the foreman’s responsibility to make requisition upon the usual sources for materials, supplies, and equipment in order to keep his department continuously and properly running. So that each man and machine may be uninterrupted in their work and scheduled to capacity, he should have at hand the materials, supplies, and tools necessary. He must consider the time element especially in ordering certain things which his company must get from outside, market conditions, seasonal demands, delay in deliveries, a continuous flow, and whatever the company’s future schedule may be. He figures to some extent on the basis of past work. A foreman should determine upon a minimum amount for each thing so that he can order ahead again when this minimum is reached. Especially in the matter of supplies, the management is desirous of keeping stock to a low degree,
yet the management may lose considerable money because the foreman does not stock far enough ahead in these supplies. In equipment estimating the foreman must count against breakdowns, and also estimate the needs for future business.

In ordering anything the foreman should give full information and reasons for ordering, especially where the material is outside ordinary needs. In the latter cases the advice of superiors is usually asked. Whatever the routing established for ordering, the foreman should carefully follow this same routine. A periodical checking of the material and everything at hand should be resorted to. It is his own protection to keep his stock up, and if in doubt the foreman can obtain the advice of other men who are more experienced.

By observing the above he is assured of continuous production, a better feeling among the employees is manifest, and his own value is certainly increased. In other words, he is a good manager and his ability to handle managerial work is noticed.

17. Reporting on irregularities.—Whatever is irregular in his department, the foreman has to either straighten out or (if it is beyond him) carry to the management. Irregularities in production, if the schedule is badly broken up, would be reported and the causes and corrections. Violations of department or the disregarding of policies of the company may be extreme enough to need reporting. The advantages taken by others outside of his department where he himself can not correct these things ought to be shown to the management. In many senses the management expects a foreman to be a protection man and to guard the money, property, and policies of the company.

18. Reporting on production.—The foreman should be prepared to furnish a report on his production at any time, these reports to be based on fact by keeping of daily records. Where printed forms are provided and a system is in operation it is frequently a duty to report on production. These reports are essential to costs and costs are essential to successful conduct of any industry. The management’s knowledge of what is going on in a department is largely based on reports of the foreman. The management uses this knowledge to promise deliveries to customers; to schedule and plan for the future, and as a basis for purchases, etc. Hence the necessity for the foreman to be prompt and accurate in furnishing full details in the reports.

19. Getting production.—Every duty of the foreman should have its productive value. Whatever he does which does not seem to directly affect production may later develop in such a way that he sees how it actually does influence production. Such matters then should be made to affect production positively rather than negatively. Every topic in this book is written with that in mind. Let the foreman review the topics and see how he can apply the right remedy to his own work.
CHAPTER X.

CONSERVATION.

1. Materials.
2. Power and light.
3. Turnover.
4. Absences.
5. Interruptions and delays.
7. Absence of material.
8. Tools and equipment.
9. Time and energy.

1. Materials.—Much money is lost through a lack of appreciation of the necessity of using in industrial life the same economic methods to arrest and prevent waste which are practiced in the home. One would not expect to throw away ingredients for food or articles of clothing simply because they are not of instant use. Material which through error in fabrication or deficiency of quality is not of immediate value should be properly examined, tagged, and stored for further disposition, rather than condemned to the scrap pile. Investigation will show that many times it might be made of commercial use. Consultation with those in authority will often turn loss into profit. Often the foreman considers errors of the workman as a reflection upon himself, and his attitude induces the workman to become a party to their concealment. This is dishonesty as well as extravagance. All spoiled and damaged material, whether finished or not, should be properly handled and if found useless for manufacturing purposes be disposed of through the regular channels.

At times, during the various manufacturing operations, standard material of known superiority of quality develops serious defects. The instant that this condition arises all work involving its use should be suspended until the proper authority is informed of its condition. This allows the management to escape with a minimum loss and affords an opportunity to recover a substantial rebate from the parties supplying it.

Most manufacturers intend to keep their product up to standard, but, unbeknown to them, certain factors may prevent. A foreman should be ever on the lookout for defective material. Supplies should be drawn on the schedule of requirements. It is an error and waste to draw amounts in excess of what experience and records show are necessary. Workmen knowing that plenty of stock is chargeable to their job will be inclined to be less accurate and careful. Stock represents money, and any waste of material is money lost.

2. Power and light.—Power and light are two factors which also represent money. Most industrial organizations which manufacture and furnish power to plants are just a little behind the requirements of the load when it is up to its peak. If machinery is not being used in a section or subdivision of your shop, see that it is shut off if
possible. That also follows with the lights. Encourage the workmen to do the same by example.

Power-driven apparatus should be shut off whenever possible. Electrical starting and stopping devices, conveniently placed buttons for lights, will amply justify their installation. Make it easier for the workman to conserve without much conscious mental or physical effort. See that there is no wastage of power. A continually slipping belt indicates either one of two things. It is too light for its load or the power delivered is inadequate for the duty thrust upon it. Slippage is waste, pure and simple.

3. Turnover.—Every time a worker goes out of the plant it means a loss of from $50 to $200. That does not take into consideration the cost relating to securing another to take his place and bringing him up to shop standards of production. Every effort should be made to find out what is the cause for his leaving and that cause corrected, if possible.

4. Absences.—One corporation required their foreman to inform his men that owing to the vast amount of work on hand no workman would be allowed a leave of absence and absence would be treated as delinquency. Promptly 18 men quit. On investigation every one, except four, gave a good, valid reason for so doing. Only four quit without excuse, and they did so because they felt they would not stay with a corporation which infringed on their personal rights. All were competent, faithful workers, and their quitting was a serious blow. How much better it would have been if the foreman had notified the workers that he would appreciate regularity on their part owing to the vast amount of work on hand. The foreman will always have the problem of time off. It cannot be wholly eliminated, but good, safe, intelligent treatment will reduce it.

There is the periodical fellow who goes on a spree. He comes in unfit to work. The next is the weekly delinquent. Tuesday is Monday according to his calendar. There is the frivolous young fellow without any restraining force, who overstays his leave or does not show up after lunch. Each case will have to be treated individually. Reasonable latitude should be allowed for the frailties of human nature, but the confirmed absentees should be dropped from the organization. They, with their mates, the fellows who are continually late, create industrial festers, which spread through the entire plant.

5. Interruptions and delays.—A frequent waste is interruption of power. If possible, assign or transfer men to other tasks. Frequent interruptions of power and shutting down a whole or part of a plant disturbs morale. If this condition is unavoidable and it involves serious interruption to the extent of a complete shutdown, full information should be posted as to the cause and probable duration of time, in order to allow the workman to adjust himself to conditions.

6. Speeds and feeds.—Speeds and feeds are open to abuse when the capacity of machines is exceeded. Excess of feeds often means waste. Man power is frequently wasted by improper feeds and speeds. The design of the machine must be known and its capacity in this regard. Seek out the catalogue for information.
Many organizations do not leave speeds or feeds to the discretion of the individual, but make it a matter of exact record based upon past performances with the elements taken into consideration. If this duty devolves upon the foreman, he should so impart his knowledge, wishes, and desires that compliance is more advantageous to the man than argument. Arbitrarily shifting belts and changing speeds and feeds, or insisting on changes on operation, without explanation or imparting information, will generally result in sulkiness, if not downright refusal on the part of the workman. It is the attitude of the foreman in imparting his wishes which induces compliance and a high spirit of cooperation.

7. Absence of material.—Tasks should never be assigned without the material being at hand. The equipment should also be ready for the material. Stock should be on hand and everything right for starting the new task. Provide ample time to get the material. The workman should not be expected to provide it for himself. The lack of these considerations means waste time.

8. Tools and equipment.—Most tools and equipment can be conserved by proper handling. They have usually a length of life dependent upon the demands made upon them. Not to overdo either and to keep them in good condition should be the aim of the foreman.

9. Time and energy.—The foreman can save his own time and that of many of his men by watching for the extra efforts which are needlessly made. These are usual in most departments. The energy of himself and men is thereby saved considerably.
CHAPTER XI.

THE FOREMAN ON STAFF DUTY.

1. Job analysis.
2. Welfare work.
3. Relations to employment department.
4. Relations to other foremen and departments.
5. Advising regarding equipment.
6. Tools.
7. Setting machinery.
10. Advisory upon production.

Besides his regular work of securing production, the foreman has many duties indirectly relating to production, which may be considered as staff work, assisting the organization as expert adviser upon various subjects, some of which are suggested.

1. Job analysis.—The object of job analysis is to find out what elements are used in any process or sequence of processes (including the minor movements of operator and sometimes of helper also), in handling material, setting up machines, performing the work, and disposing of the product and waste. To definitely ascertain what these elements are demands careful study, frequently involving many separate observations, and the ascertainment of the average time each operation or movement should require. Some methods attempt to establish the time of these separate movements when the production pace has been attained. The next step consists in analyzing the movements, with a view of eliminating any unnecessary to the desired result. Finally, the essential movements and operations are combined in the proper sequence, the time also being stated. The total of these periods indicates the whole time allotted to the process.

Four elements are studied in making a job analysis—time, motions, materials, and equipment. The time that properly should be required is sought. But that can only be known by ascertaining what motions are necessary and how long each should take; by analyzing the work the men must perform and how they should do it; by seeing what sort of material is needed, and how it can best be provided for efficient handling; by making sure that the equipment is the right kind, and that it is used to the best advantage.

The extent of investigations for job analyses depends on the purpose. Only a listing of the principal elements is needed for some purposes, such as an occupational classification, which is made for the benefit of the employment department to show what extent of skill a needed workman should have. If the analysis is to equalize rates of pay, or to classify workers, a similar listing may be enough; but if the job is analyzed to find out how to increase production, set
rates of pay, or make an estimate of cost of a job, it will be necessary to go much further. The more careful method of study first stated would then be employed and repeated until a fair average can be taken.

2. Welfare work.—Exact definition of "welfare" is difficult. As used by Congress in establishing the Federal Department of Labor and directing it to "foster, promote, and develop the welfare of the wage earners of the United States," the word "welfare" has been construed as applying to the conditions, surroundings, and actions taken to change and better the lives of wage earners, outside their employment. The English phrase "civic betterment" is more descriptive. From the foreman's standpoint, welfare work has many aspects. As the point of daily contact between the company and its employees, he learns, or if wisely sympathetic, can learn more of the domestic and social problems that oppress such employees than any other man. First he must gain the confidence of the worker by frank and honorable dealings, tempered by practical sympathy.

The principle justifying "welfare" work is that the company and its employees are alike members of one community and with a social stake and obligation to it; that the company having larger resources and opportunities, is under a corresponding obligation to suggest, initiate, and support social movements that imply no direct financial benefit either to company or employees, but rather profit the mental, social, and spiritual elements of society of which all are a part.

The foreman's share as a leader in welfare work is a privilege, with a double responsibility, as the arm of the company and as one of the community.

3. Relations to employment department.—Where the company has an employment department, to the greater or less extent it is organized the foreman will be relieved of his staff duties relating to hiring and some of the welfare work. His duty then is to give sympathetic cooperation and constructive help to the employment manager. It relieves the foreman of responsibilities which interfere with his prime duty of getting quality production. As the function becomes better understood, employment management will be increasingly valuable to the foremen and to the company. Tactful suggestions from the foreman will greatly aid in this development.

The employment manager's function is not that of training, but coordinate with it. His job is to get the type of workman having the degree of intelligence and skill needed by the factory. The employment manager often has difficulty in understanding just what type of workman is needed by the foreman, and his failures in this regard sometimes creates distrust of the function in the minds of the foremen. This misapprehension should be avoided. It is the foreman's duty to help the employment manager by clearly stating what the needs of his department are, giving full description of the kinds of men wanted. The employment manager should be assisted in discovering new sources of labor supply. The Federal Department of Labor issues books on many trades showing classifications of occupations, which will be suggestively helpful to the foreman in describing to the employment manager the kind of man he needs when calling for more workers.
4. Relations to other foremen and departments.—No department liveth to itself alone. Like the members of the body, "the foot can not say to the hand, I have no need of you, for ye are all members, one of the other." One foreman's department receives help from one or more other departments and others depend on him. It is teamwork that breaks production records, not star plays. And in the time of trouble that hits every foreman occasionally, willingness to help is an asset.

Cooperation means work that helps out another man's purposes. If the department receiving his output gets stuck, no considerate foreman will insist on blocking it more. Rather let him shift to some other work if he can, or stock up for a while. Maybe he can lend his fellow foreman a man or two in a tactful way, making it easy for the hard-pressed associate to ask for them.

A foreman may be put on a plant committee with other foremen, to study a process, recommend new machinery, rerouting, or what not. Modesty, suspension of judgment until he is sure all the facts are before him, deference to the opinions of the other foremen, and care to avoid dogmatism in presenting his own views will soon win respect. It should not be assumed that deference requires yielding judgment. If one disagrees, stick to it, but he should be very sure he disagrees on solid grounds of fact, especially if design, technical theories, or mathematical equations enter into consideration, for sometimes an old foreman may be technically shaky on these elements and yet from experience be a good general reasoner. Whatever the conclusion, forget it, win or lose; do not be contentious.

5. Advising regarding equipment.—It is the foreman's privilege and sometimes his duty to advise his superior regarding the state of the equipment under his charge. (See Chapter IX.)

6. Tools.—Invention and improvement are constantly rendering tools, both hand and machine, obsolete and unprofitable. The trade journals announce new equipment ideas, which should be studied by the foreman with due regard to the uses intended, the present and future prospect for business as he sees it, and the apparent percentage of value in terms of quality or quantity of output above that obtained by existing equipment. When he sees an idea that stands the test of these considerations, he should report it with all the facts he has.

7. Setting machinery.—Even in large plants having planning departments the foreman is generally called upon to advise regarding the location, relocation, and setting up of machinery. The technical requirements should be carefully analyzed, with reference to transmission of power, limitation of waste, economy of artificial light, convenience of access, etc. If directed to supervise the setting, the foreman's task is no longer advisory but executive.

8. Modern methods of accomplishment.—New ideas and improvements helping in quality, quantity, or finish, or reducing expense in labor, material, or equipment are constantly becoming known. The habit of watching for these new ideas may be cultivated until almost automatic. The foreman who acquires the habit and is reasonably tactful in bringing his discoveries to his superior's attention will soon be at least an unofficial advisor to the management upon improvements.
9. Advising the management as to the effect of their policies upon their men.—At times the foreman will have an opportunity to advise his superiors regarding the effect of company policies found helpful with the employees, so that the company may beneficially develop and further them. Occasionally it will be his duty similarly to notify the company, through his superior, regarding other policies which may be causing discontent and unrest among employees. The management frequently fails to discover undesirable conditions until the whole relation between employer and employee is soured and poisoned, whereas a word in season could have saved it all. The obligation is a delicate one. An initial assumption that either employer or employee is wrong is not only unwise; it is improper and dangerous. The information to the management should be confined to facts and assured, reasonable inferences, the purpose to avoid trouble. If the management has, without realizing it, invaded a right or trampled on a cherished and harmless custom of the workers, this will give them a chance to mend matters without loss or prestige. It is simply a matter of misunderstanding; an opportunity to clear it up should be sought. If the management, knowing that a policy is breeding discontent, on reexamining that a policy still feels it is right, although the presumption will then be in favor of the policy, the foreman must face the issue of good faith, loyalty, and self-respect as to whether he can rightly retain his position and enforce the policy, or resign. Upon his decision will depend a greater thing than job or salary—his manhood and the respect of his fellows, in and out of the company.

10. Advisory upon production.—Wise managers make their foremen an informal advisory staff upon operations, and frequently go further, holding regular staff meetings for exchange of opinion upon the progress of operations, the status of production, and the ways and means of filling the gaps that are constantly appearing between departments through which material passes for successive operations. Modern accounting applies cost-finding inquiries to each department severally, and frequently brings embarrassing charges of unprofitableness against a foreman whose department, although indispensable, is spending an undue proportion of labor or material cost. As advisor on production the foreman should study departmental economy.
CHAPTER XII.

THE MANAGEMENT'S OBLIGATIONS TO THE FOREMAN.

1. Introduction.
2. Outline of policies.
3. Organization instruction.
4. Means to work with.
5. Outline of duties.
6. Proper supplementary instructions.
7. Development.
8. Recognition.
11. Supervision of foremen.
12. Constructive criticism.

1. Proper introduction.—A new foreman whether from outside or the ranks expects the management to properly introduce him to the executives, foremen, and to others of the organization with whom he will be in touch.

He should understand the particular work of these individuals and see how his own work will dovetail with theirs.

The new foreman should feel that the manager's or superintendent's office is a place to which he should resort rather than one he should avoid, provided there is a legitimate reason for his going there.

2. Outline of policies.—The foreman should learn from a superior the major policies of the company. There will be minor rules which he will get from other foremen. These policies should explain in detail regulations affecting labor, including promotions, transfers and discharges; hours of work; standards; wages; equipment; layouts; handling of materials; extent and limitations of responsibility in technical matters of operation; any special procedure or courses which are followed in the administration of the company's business.

Whenever these policies have been put into writing, there is the advantage of constant reference to them. Some firms have such policies in booklets for their foremen. The foreman should enlighten himself upon various phases of the company's work. He should ask for information if the company does not volunteer it. Especially with regard to its policies, he should have absolutely correct information for he will have to interpret them to the employees under him.

3. Organization instruction.—Organization charts are sometimes confusing. But the foreman should know just where his department fits in and so understand his relations to other departments that he can run his job smoothly. If he is not furnished a diagram or other printed explanation and introduction that make this clear, he should seek verbal information that will outline how far he should go and where to stop.
4. Means to work with.—Probably the thing that annoys the foreman more than anything else is a demand for production when the management has failed to provide some necessary facilities. Matters may be all right so far as his own department is concerned, but some other section may be at fault or the management may fail to supply him or is unwilling that he supply himself with the necessary means. The foreman expects the management to give him sufficient means to work with. These may be summed up briefly: First, the machines or equipment, the tools, the material to work on, and the human beings who are to do the work. He expects certain instructions regarding how the work is to be done. He looks for standards and conditions, whether of safety, sanitation, or other necessary phase. There are other factors which he should seek, such as supplementary knowledge, training, service of various kinds, and the continuous supply of material. Finally, he expects support.

A foreman may be asked for returns which can hardly be expected when the capacity of all these factors or of any one of them is limited. For example, the management may insist on limiting the number of men that a foreman should have; he should point out that it could hardly be expected that these men should continuously work beyond their capacities without great loss to themselves physically and eventually to the management. If beyond-capacity demands are made, unless there is a reason for this request, the foreman should point out to the management its obligations to secure the necessary factors or make allowance for the absence of them. Moreover, in the matter of materials to work on the foreman should insist upon being relieved of uncertainty. In large plants the foreman is not usually responsible for the supply of materials, yet frequently he is the one upon whom this blame of shortage descends. Then the outside factors which enter and over which he has no control, such as breakdowns, bad materials or equipment, weather, etc., should be pointed out, and the management should be put in possession of any such fact, so that it may fully assist the foreman to discharge his functions.

5. Outline of duties.—The foreman usually has pretty well defined ideas as to what his duties as a foreman should be. It is often the case, however, that he will learn as much of the preceding foreman's wrong as his right ways of doing things.

Consequently, at the very beginning of his new term as foreman, he should request the management to outline his own duties regarding his department, and its work. The foreman from outside needs such instructions especially, because the methods used in his new position may differ from those he has been accustomed to.

6. Proper supplementary instruction.—Every plant has occasion from time to time to supplement processes, procedures, systems, etc., or make changes in them. Again new systems, etc., will be installed which call for abolishing present ones.

With the many duties of a foreman every change of such a nature means additional responsibility. The changes or new systems should be carefully explained and demonstrated. Mistakes in filling out even the simplest of new forms are usually numerous, principally because of insufficient instruction given by the management, and lack of consideration for time required to change an old habit. The foreman should insist on demonstration of facilities and processes when
new, both to himself and to his force who are likely to use them. Otherwise there may be numerous mistakes, and the best way to correct mistakes is to prevent them by thorough instructions.

Policies may be altered and the foreman should know of any policy so altered and understand the extent of any change.

7. Development.—Managements should be, and usually are, glad to have progressive foremen. Some employers help their foremen develop for the better fulfillment of their duties and for the additional responsibilities and higher positions that may come to them. They sometimes recommend and initiate courses in foremanship employing outside lecturers and courses or utilizing the best men within their own organization as such lecturers.

Several means are offered foremen to develop a broader understanding of their responsibilities. Committees can be formed for progressive plant development on which foremen should be represented. By a wise mixing with men on such committees, the foreman can gain a rounded-out judgment on the particular program. The weaker foreman will learn from the better trained men he associates with on the committee and his viewpoint will be broadened.

Foremen should seek the privilege of expressing themselves freely in weekly or periodical conferences of all foremen. Probably more than anywhere else the foreman feels free to express himself among other foremen. A foreman here appreciates his own actual share in management.

Much literature of educational worth is distributed and available to foremen. Many plants periodically print literature for their own foremen. The foreman should seek out such publications and put himself on the mailing list of suitable bureaus.

Visiting other plants for development usually gives a double benefit. The foreman who visits may profit by some suggestions he hears and put them into effect in his own department. In turn, the foreman in the plant visited may get suggestions from the visitor and acting on them help his firm.

The foreman should read the trade journals. Scarcely a trade exists which does not have at least a few of these magazines, always carrying suggestions of value. The management can give him help in selecting good journals.

8. Recognition.—Recognition of services well performed, whether regular or special, is due a foreman by the management.

Foreman appreciate the recognition of a particular foreman for good work when several foremen are gathered together.

There are also the ordinary forms of recognition and business courtesies—the daily salutation, the knowing of a foreman by his first name, the seeking and acceptance of opinions, which a foreman naturally and reasonably feels is the management's acceptance of him and his work.

One form of recognition which is sought is the assignment of further special responsibility to a foreman who has rendered particular service, singling him out as one who can safely and successfully accomplish.

9. Commendation.—Praise for work well done or for work specially performed is appreciated by everyone, particularly when this comes from a superior.
A letter of praise for exceptional accomplishments is always prized by the one who receives such a letter. The praise which can be made public always makes a foreman feel good.

10. Raises in pay.—Just as it is important that a management outline and define very clearly a foreman's duties, so it is important that as far as possible he should ask and receive a definite pay mark to look forward to. Many factors may govern the raising of the pay of a foreman, but he should have knowledge of the pay limitations before he starts his work. He should also have the management’s viewpoint on the factors that determine the consideration for raises in pay.

These may be such as production-getting ability, leadership, length of service, business conditions, and competition, and he should know what elements are to be considered.

11. Promotion.—Other factors being equal, the opportunity for promotion should be possible for a foreman within his organization. Most firms prefer to promote their competent home-trained men rather than bring in a new man. The foreman who looks for opportunity will find an open door.

When a foreman enters upon his duties he ought to know the limit of opportunities for advancement within the plant.

Promotion may involve more responsibilities at the same or similar work, an executive job, or raise in pay. Usually the latter accompanies the former, unless it is under a system where foremen in a plant are changed about for experience sake and for further development for choice of executives. This has an advantage of keeping a foreman in touch with the whole manufacture of a product and enables him to further its and his own development. Moreover, there is an opportunity to find the place he is best fitted for.

12. Supervision of foremen.—Foremen should understand that management's supervision does not end with the initial instruction it gives him regarding its policies, his duties, etc. Nor does it end after the first week or month of closely watching the new foreman to see that he is going to make good.

Especially where policies affect the employees, and in which the foreman is the intermediary between management and employees, will the management give constant checking up and supervision.

The foreman is the firm to many employees; he is the only representative of management that the employees encounter. Distorted, incorrect, or improper presentation of any policy to the employees by a foreman reflects unfairly upon the management, as does half-hearted support of any policy. Many well-devised plans for mutual betterment have failed in plants because of mishandling by certain foremen. Honest methods have become discredited by methods of presentation.

13. Constructive criticism.—Men generally learn more from the mistakes they have made than otherwise. But it is possible for a man to continue to do a thing wrong and not realize it until some one has pointed out the error. Foremen are in no sense different from the average man. They may continue some wrong method until the error is pointed out and a better way shown them. Criticism should always be constructive. When a management finds fault with a foreman and his methods it should also point out the way to correct these faults, and should show the foreman a better way.
The foreman is likely to be criticised first on production, either upon quantities or standards. Then the management will analyze the conditions affecting production within the department in question. Sometimes it may be that some system which the management insisted upon is having the effect of slowing up production. In any event the management should find the cause and correct it. Or it may be that some outside relations or something personal is causing the foreman to spend too much time on these matters to the neglect of his duties.

There may be many points wherein a management may have cause to criticize the foreman. It may be the manner in which the foreman received a particular policy—the presentation of policies to employees, cooperation with other departments, on his hiring and choice of workers, on his conduct, his own failure to live up to his responsibilities, etc. It may be that he is not getting the results which were expected of him, or that he has forgotten certain things; the management has the right and duty to show how to obtain better results.
CHAPTER XIII.

ORGANIZING COLLECTIVE TRAINING FOR FOREMEN.

1. How much training required.
2. Lectures.
   (a) Men already in plant.
   (b) Regular instructors.
   (c) Men outside the plant.
3. Courses.
   (a) Local public schools.
   (b) Related subjects by correspondence.
   (c) Private instruction.
   (d) Training department of company.
4. Experience.
   (a) Plant training.
   (b) Other plants.
   (c) Technical schools.
5. Summary.

1. How much training required.—These instructions were prepared for the training of foremen in order to enable those who already hold foreman positions to perfect themselves at their work and to enable those who are aiming for the position to attain competency in the least possible time and by the best methods.

   A view which the foreman should take is, that by training he will help industry in general as well as himself. The foreman is naturally swayed by selfish motives. That is legitimate; most certainly the individual is entitled to all the success and position he can secure by superior fitness.

   If by training a man is able to do his work more easily, command a better position and a higher salary, obtain a greater degree of respect from those about him, then from selfish motives at least the man should train himself. The big man, however, in addition to that, should want to train and better himself in order that he may be of greater service to those with whom he is associated. Of course, the more helpful he is to his associates the more experience does he gain himself, and the more does he benefit.

   It may be difficult for one or more foremen to determine how much training they need and to what extent they need it. This question had better be decided by a higher executive, as, for instance, the general foreman or superintendent. When foremen have become convinced that training is necessary they should confer with their superior and talk the matter over at length. It is hardly conceivable that any foreman does not need some training, no matter how competent he may be, but it is difficult for the foreman himself to determine what training he needs. The superintendent or other executive should take an active interest in the subject and help the foremen to analyze their situation.

   If the executives prefer, they may get an outsider, a training expert, to make the analysis. Such a man, if competent, will probably be very helpful.
2. Lectures.—Instructions for foremen can probably be most successfully given by means of lectures. The foremen in the plant should either group themselves together or be instrumental in inducing the management to form such groups to whom lectures may be given by a man competent to do so. These may be foremen or other executives in the plant who have specialized in their particular line of work, outsiders who have done so, or instructors connected with the educational department, if there is one in the plant.

No one should deliver a lecture without an outline, nor should he digress from his subject and talk at random. The meeting should be open for discussion, but confined to the subject of the lecture.

In any event, the courses must be conducted in a businesslike way and by men who, by their influence and personality, can conduct the lecture with system and energy. There must be “pep” and life in the lectures, otherwise they will not succeed. They should be at regular intervals and the members should be urged to attend regularly. Records ought to be made of the attendance and progress of the members.

(a) Men already in plant.—When men in the plant are called upon to give these lectures, they should thoroughly study the written instructions previous to lecturing, amplifying the information and outlining concrete examples which will connect it directly with the work of the plant. A series of questions should be outlined and given to the men attending the lectures so that they may prepare answers to present at the following lecture. At that time, these answers may be discussed and the best selected; after which, all answers may be recorded, duplicated, and returned to the members of the class.

The lecturer must be carefully chosen. He should be a good leader who can successfully conduct a meeting since his attitude, competency and direction, or lack of it, will govern the success or failure of the undertaking.

(b) Regular instructors.—When there is an educational department in the plant, it should supply competent lecturers, who can greatly assist in the formation of classes and the direction of courses of instruction. These men are expected to be more competent in giving lectures, since that is part of their work. They should make a thorough analysis of plant conditions and connect their instructions with actual shop conditions.

(c) Men outside the plant.—When men outside of the plant are called upon to lecture, they too, should follow closely the outline suggested for men in the plant, and their selection be made just as carefully. Men of theory should be avoided. Outside men are in a position to make contrasting remarks showing the difference between the methods used in various plants with those in the shop where the lectures are being given. One advantage of having outsiders give the lectures is that such men usually command better attention and arouse more interest among their hearers.

3. Courses.—Training courses for foremen may be obtained from various sources. The book of which this is a part, for instance, constitutes a course which may form the basis for foremanship training.

While it may be possible for foremen to study these and other courses individually, they will probably derive better and more bene-
fits from courses that are given in groups, because the instructor or lecturer will interpret and amplify the written instructions, making it possible for the whole class to discuss the subjects under consideration, and, therefore, the student will be enabled to get the viewpoints of several others besides his own upon the subject.

(a) *Local public schools.*—In many places the public-school systems will afford instructions for foremen in studies which are not touched upon in the average foremanship courses. For instance, English, arithmetic, physics, chemistry, mechanics, and natural science may be studied in many public schools with little or no expense to the student.

(b) *Related subjects by correspondence.*—There exist at the present time several correspondence courses for technical training which can help a great deal, provided the student will work diligently and with perseverance. Besides, correspondence courses will enable one to take up many related subjects which will help measurably to fill a foreman's position. What subjects he needs can best be determined by the man himself. He will probably know or can find out what his shortcomings are, and he will have no difficulty in getting by correspondence whatever subjects he wants. These sometimes lack proper direction and application.

(c) *Private instruction.*—Private instructions are perhaps the most helpful of any, but usually cost the most. Competent instructors are seldom available, and before making arrangements for private instruction the instructor's qualifications and credentials should be carefully considered to avoid spending time and money with an instructor who may be only mediocre.

(d) *Training department of company.*—When there is a training department in the plant, it should have competent instructors who can properly interpret the necessary courses and will be better able to correlate the shopwork with the lectures. The instructors in such a department should make a particular effort to find illustrations for the various topics considered in the instructions so that the practical side of the subject will always be uppermost. All theories and principles should be directly applied to the work in the plant so that the members of the class will benefit most by the instructions.

Large groups of members should be avoided. The members in small groups can better express themselves and get more individual attention from the lecturer or instructor.

4. *Experience.*—There is much that foremen cannot learn except by experience. No matter how much education a man has or how many qualifications he may have, he is not fitted for the position of foreman until he has had experience. There are two ways of acquiring experience. Some acquire it indifferently, not realizing what it means or striving to get its benefits. Others are enthusiastic about it, and with open eyes try to get all that they can out of it. The latter make keen observations, analyses, and records of their experience, either mental or written, and therefore make much better and quicker progress than the indifferent.

(a) *Plant training.*—Some plants have found it advantageous to train their own foremen. In such cases the management chooses promising men who are transferred from one department to another until they have covered all the important work in the plant.
this process is going on, related knowledge is obtained, either in the educational department of the plant or from outside sources.

While the student foreman can not control the means to get his experience, he should be instrumental in furthering the development and improvement of such courses as may already exist, by making suggestions and keeping constantly in touch with his superiors, expressing his opinions and stating his impressions on the progress he makes. These statements should be founded on fact and on records of his observations.

(b) Other plants.—Much benefit may be derived by obtaining experience in other plants. This will broaden the student foreman’s views, give him new ideas, and he will gain much experience not otherwise obtainable. As the period allowed him to obtain experience in other plants may not be long, he should concentrate his efforts to see all that he can in the available time, and go for some definite purpose, making very complete and accurate notes and records, followed by comparisons between his own and such other plants.

The plants he visits need not be doing the same or even similar work. A foreman of a shoemaking department will benefit by visiting a plant where shoemaking machines are built. Or it may help a foreman to see how the raw materials he uses are made.

(c) Technical schools.—If a foreman aspires to a high type of foremanship and has not had sufficient elementary or technical education, he will make the greatest progress by getting such education in a technical school, if there is one available. Perhaps the management of the plant has already provided for cooperative education, allowing the students to attend outside schools for a given period each week. If this is the case, it will be a simple matter for the foreman desiring training to enroll in the course and take up the studies as well as the shop training.

5. Summary.—This chapter is intended to emphasize strongly the necessity for training of foremen, the benefits to be derived from collective training, and suggest ways to secure it. The chapters of this book will make a good outline for the courses proposed. There is not a foreman in the industries to-day who can not benefit by such training. There are many cases where it is very necessary and much needed. It is “up to” the foremen themselves to avail themselves of training and educational courses where they are provided, or themselves to organize courses or induce their employers to assist them in doing so.
CHAPTER XIV.

WOMEN WORKERS.

1. Selection.
   (a) Interviewing.
   (b) Hiring.

2. Supervision.
   (a) Training.
   (b) Lates and absences.
   (c) Work in relation to strength.
   (d) Cleanliness and sanitation.
   (e) Dress.
   (f) Social features—recreation.
   (g) Labor turnover among women.

3. Compensation.

STANDARDS TO BE OBSERVED.

A foreman is more interested in getting the best worker for the job than in the worker's sex. But he must consider some fundamental sex differences in hiring or supervising workers, if he is to build his work force after the best standards.

No distinction has been made between men and women workers in the general subjects of this book because, after all, management has the right to expect a uniform standard of performance. But this uniform standard of performance will not be obtained from women unless safeguards are observed.

Strange as it may seem, the average woman worker prefers to work under the general supervision of a man. The foreman is not handicapped in dealing with women workers; but rather has an advantage over the forewoman. A foreman who maintains an attitude free from hint or questionable design, impartially just in his relations, should have success in supervising women, especially if he acquaints himself with the most approved methods in maintaining loyalty and enthusiasm for quality-service.

It is not necessary or desirable to treat women in industry as children; they resent a paternalistic benevolence that sets them conspicuously apart from men workers in the scheme of things. They have demonstrated in high degree the same qualities that have marked male workers in American industries as the best in the world, and only expect that industry shall provide clean and wholesome surroundings and adequate safeguards for health and morals, so that when they come to make a home for some one, their standards will not have been lowered, nor their vitality impaired. It is as true to-day as at any time in the history of the world that women aspire to be partners in home life and mothers of fine children. This great truth can not be lost sight of in consideration of the subject under discussion; for the sake of the unborn generations, the stay of women in business and
industry should be made so free from wrong influence and overtaxing strains that they will be unharmed for the greater responsibilities that may fall to their lot in case of marriage.

Where a personnel department is in existence a large part of the special arrangements can be made through it; a separate section, under a woman supervisor, being devoted to women's welfare and interests and responsible for organizing and installing desirable features. In the absence of a personnel department it would be difficult for a foreman to install the facilities recommended, but he would be poorly equipped to evoke the best efforts of woman workers unless he has a sympathetically appreciation of the more important standards conserving their interests.

The special needs of women workers for which a foreman should make allowance or provision are grouped under three general headings, "Selection," "Supervision," and "Compensation," and here considered briefly.

1. Selection.

(a) Interviewing.—In most large concerns the work of hiring is done by an employment manager. Where the foreman is expected to employ help as he needs them, these suggestions will not be amiss. Women should be told the bad points of the job as well as the good ones; not the maximum wage she can earn, but the average. When a girl, hired this way finds things a little better than she expected and that she can make even more wages than she was told, she is likely to be happy and stick to the job.

Wherever possible, women applicants should be interviewed by a woman. If there is not enough interviewing to employ a woman's full time, the foreman should select and train the best qualified woman in his department, to whom this work may be delegated. Being naturally more inquisitive and understanding other women, a woman interviewer would be qualified to get a complete statement more quickly than a man and with less danger of offending the applicant.

(b) Hiring.—In selecting women workers the interviewer, in addition to observing the standards outlined in Chapter V, should note these hints:

1. Standards of character and morals count for very much with women; they dislike to work in the same room with one whom they suspect of low social standards. Some consideration must, therefore, be given to social types among women.

2. Women can not do work requiring heavy lifting or muscular strain; but they are especially valuable on light speedy jobs that are not too complicated. Close observation should enable the interviewer to discriminate between the fast, nimble-fingered worker and the slower type; the jobs that require deftness of hand and quickness of eye give opportunity for the former type of worker to make very creditable records, if they are rightly chosen, trained, and placed.

3. The foreman should analyze the various jobs for women in his department and catalogue them with reference to the type of girl required. As for instance: "Inspection—Girl should be over 20; must be observing, not frivolous; one of the slower type will do; middle-aged women may qualify." Every job should be catalogued in this manner, and in addition to this the girl should be made to understand at the beginning that she may have to be tried on different jobs and
that she will be kept on the job for which she is best adapted rather than on the one she likes best.

2. Supervision.

(a) Training.—The foreman handling girls should be gentle and kind but absolutely firm. If the girls discover that they can influence him by sentiment or coquetry, or in any way from just decisions, he will lose his influence and control.

1. He should have a rule, if there is none in existence already, that any girl using low or profane language unbecoming a lady will be dismissed at once. In conjunction with this he should set the example himself by using clean language in conversation with the girls.

2. It is a common thing in factories to have foremen who swear at the girls and naturally the girls get to swearing too. A foreman of this kind is a menace to society; he is not likely to get good results in production; the girls lose respect for him and he loses control over them. In making the above rule it should not simply be posted as a formal notice but the foreman should talk personally to each of the girls and tell them he intends to enforce it to the letter and then enforce it. A few examples well advertised will put an end to it, and the force will get to know that they can not engage in low and vulgar talk with impunity. This is very important and the good, clean, decent girls are entitled to this moral protection. The foreman has a wonderful opportunity to disseminate an atmosphere of morality among women workers.

3. About five minutes after the starting whistle has blown the foreman should walk slowly through his department and say "good morning" to the girls, he need not spend much time doing this, but give them at least a nod and a smile. In doing this he should be sure not to miss any of them, if he does they will feel hurt. It is a good way to start the day and it will create a bond between the girls and the foreman.

4. He should take each of the new girls that start into his confidence and have a few minutes talk with her along definite lines. He should tell her first of all that he expects a fair day's work; that he will do everything in his power to help; that she should not be afraid to tell him any difficulties she may have with her work. He should have an understanding with his assistant forelady or sub-foreman to let the girls come to him when they can't settle their troubles otherwise. He should tell them also that he does not want them to feel that they are in prison while in the factory, but on the other hand they should not consider it a playhouse where they may indulge in talk and play to the detriment of their work.

5. He should use the persuasive rather than the domineering method of supervision. It is better to say to a girl "I would like you to help me out with this order" than to say "this has got to be done to-day, so you had better get a hustle on you."

6. The plant that has a modern training department may consider that its beneficial effect upon new women employees is one of the advantages that accrue. In some lines of work that are exacting and speedy the labor turnover among women employees is serious unless the workers are put through a preliminary course of training. Women are more easily discouraged than men as a rule; they are diffident and lack confidence in coping with unfamiliar problems and
3. Compensation.—Equal pay for equal work is a recognized principle, the only difficulty being to determine what equal work is. Some jobs are better suited for women to perform; some are better done by men. Minimum wage rates for women are fixed by law in some States; labor and legislative bodies are standing squarely for women workers receiving a just wage, and employers are setting the example by paying women relatively the same as men.

GENERAL OBSERVATIONS.

The foreman among other things will avoid any appearance of favoritism. One of the difficulties he will encounter in supervising women is the fact that they do not naturally taken an impersonal view of their work and surroundings. It seems they are prone to expect personal consideration or exemption; that they take to heart fancied slights or criticisms that are not meant as personal reflections. The foreman must train himself to treat all the workers impartially and make a special effort to maintain this attitude toward women workers. Separation of women workers from men is not necessary if the factory layout is free from obscure places and dark corners, and if the foreman has clear view of all sections of the department. Separate entrances and exits are recommended in plants where there are a large number of both men and women workers.
CHAPTER XV.

BIBLIOGRAPHY.

Ability or competency plus continuity and perseverance lead to efficiency. Possess or acquire adequate knowledge or skill in any profession, vocation, or duty, and by patient perseverance a foreman can accomplish the *gradus ad parnassum*, or as Josh Billings might put it the “Get there, Eli,” and attain a high degree of efficiency.

The reference numbers are those employed in the Library of Congress, and the books may be drawn by them in most libraries.

Alden, C. L.: How the foreman can promote shop efficiency. Railway Age Gazette, July 1, 1910. V 49 15–16 TF 1 R 2 V 49


Dean, Stuart (1875): Shop and foundry management, New York. The Iron Age, 1913. 220 p. Illustrated, forms and diagrams. TS155 D4


—— (1853) : Practicing efficiency and knowing costs. The Emerson Co., 1912. 12 p. diagrams. T58 E35

—— Efficiency as a basis for operation and wages. 3d ed. New York. The Engineering Magazine, 1912. HD31 E62

—— Securing efficiency in railroad work. New York, 1910. TF506 E6 E6

—— The twelve principles of efficiency. 428 p. T58 E4

Emerson efficiency institution. Possible leaks and losses in manufacturing. 1918. TS155 E38

Paying Labor for the Best Results (in Employer and Employee); Chicago, 1907. p. 103-111. HF550 E5.

Popp, Adelheid: The biography of a working woman. T. F. Uniom. 1912.


Scientific Machinist: For superintendents, engineers, and operators of power and electric plants and all machinery. V. 14, 1896. Cleveland. The Scientific Machinery Co. III. Illustrations, diagrams, semi-monthly. I. Machinery, period. II. Factory management, bibliography. TJ1 S4.


Shinn, E.: The art of handling men. World's Work, November, 1905. VII 6000-6002. AP 2 W8 V. II.


Thompson, Clarence Bertrand: The theory and practice of scientific management. I. Efficiency, industrial. II. Factory management. T58 T55.

Report in manual form on the accomplishment of scientific management, supplemented with a discussion of how to secure some of the most important of these accomplishments. A. W. Shaw Co., Chicago, New York, etc., 1917. 175 p., illustrated. T58 T4. 1917. T58 T55.

Thomson William Howan: The premium bonus system; a scheme for stimulating and increasing the productive capacity of industrial resources, by W. Rowan Thomson * * *. Glasgow, McCorquodale & Co., Ltd., 1917. 99 p. I. Bonus system. II. Piecework. III. Industrial efficiency. HD4928 P5 T5.


Vosburgh, Frank Robinson: Instructions to foremen and how to become a foreman. Chicago, Ill., C. Tuck & Co., 1904. T 58 V9
Waldron, F. A.: Modern methods of shop management; details of a system taken from actual practice. Iron Age, April 28, 1910. v. 8.5; 982-986. T1 17 v. 85
West, Thomas Dyson: The efficient man for the use of all interested in the training of minors and development of supervisors to best manage men, etc. The Gardner Printing Co., 1914. Cleveland, Ohio. H. F. 5386 W45.
Worman, H. A.: Building up the force; how to get help, handle applicants and fit men into the organization; how a factory weeded out a hundred men, yet scored, etc. A. W. Shaw Co., 1913. Chicago and New York. TS155 F25 1914 1913.