RAILWAY ORGANIZATION.

FORMING ONE OF THE TWELVE VOLUMES OF THE REVISED AND ENLARGED EDITION OF

THE SCIENCE OF RAILWAYS.

BY

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RAILWAY ORGANIZATION

EMBRACES AN ACCOUNT OF THE CHARACTERISTICS OF THE SERVICE; THE RESPONSIBILITIES OF EMPLOYER AND EMPLOYE; THE PRINCIPLES AND METHODS GOVERNING THE ADMINISTRATION OF RAILWAY COMPANIES, WITH AN ACCOUNT OF THE FORCES OF RAILWAYS AND THE DUTIES OF A GENERAL CHARACTER THAT SEVERALLY FALL TO OFFICERS AND EMPLOYES.

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THE SCIENCE OF RAILWAYS.

INTRODUCTION.

Few men have the opportunity of becoming acquainted with the minutiæ of railway affairs in all their phases. This renders books of reference both necessary and valuable. The employer, the employe and the community are alike benefited by them. It was this thought that suggested the accompanying volumes. They treat of specific things, but do not reflect the methods of any particular property or organization. Polybius, in describing the Roman constitution, says if the reader finds the matter in his work to be trustworthy, he must assume the omissions to be intentional and unimportant. I cannot say this of the accompanying volumes. To treat exhaustively the science of railroads would fill a library. I do not attempt anything so elaborate, but seek only to point out essential principles and practices.

On almost every railroad we find manuals in a more or less advanced state, but nowhere an attempt to explain the principles which govern as well as the rules and regulations which are to be observed. The reason is that the former do not properly find a place in such publications;

they cannot be given the force of specific orders. In a work such as this I am able, as a general thing, not only to give the rule, but the reason therefor—the philosophy of the subject, in fact.

The question of corporations in our age is second to no other in the economy of life. Their methods and problems will be more and more studied with the lapse of time. They are matters which concern everyone, capitalist, manufacturer, merchant, banker, farmer, railroad employe and officer and owner. Only by understanding them can proper government be secured. Railroad companies are the greatest of all corporations save those of a public character.

Each year railroads have improved in character and artistic excellence. This improvement has extended not only to the manner in which business is done, but to the physical property as well. Each year the station agent has understood his duties better; he and those about him have become more competent, more ambitious, more fit for promotion. This has also been true of train employes, of officials, of employes at shops, of the force generally. It has been the result of education, of experience and observation; of what they have done and of what they have observed. Each year railway property has, because of this, become more effective, safer, more wisely administered.

In the accompanying volumes the subject is treated as a whole. These books have occupied my spare time for twenty-five years. They harmonize throughout with my occupation as a railroad man, and have not, therefore, conflicted therewith; but, on the contrary, have been a constant aid to me. During that time I have had access, as an executive officer of one of the greatest and best managed railroads in the world, to every department of the service and have been familiar with the most enlightened practices and the best types of railway men.

I do not set out to write a history of railways or to compile their statistics, I leave that to others, but to describe the methods and principles which must govern their affairs in order that every one may derive the greatest possible benefit from their use.

The permanency and future value of corporate property depend upon its being scientifically governed. There is no other subject at the present time of equal economic interest.

I believe, however, that the evils of corporations are self curative. The final and real governors of every property are its owners. They are wise, silent and forceful leaders. Ever alert and watchful, they cannot be permanently overreached. This is why the service of private corporations is so much more efficient than that of

public corporations. It inspires personal concern and interest of the owner.

In reference to the accompanying volumes, a word may not be out of place. Every writer pays with usurious interest for his shortcomings. I am, myself, an illustration of this. Thus, to illustrate: I once wrote that I thought the treasurer of a company made the best accounting officer because of his potentiality. The statement was gratuitous. I should have said that an accounting officer was good or not, according to his wisdom, adaptability, experience, energy, determination, knowledge of human nature, and the respect paid him in his office. In another place I said there was an irrepressible conflict between certain railway officials. I should have said that wherever men's ambitions and interests conflicted, or wherever a particular officer stood between another and such aggrandizement as he sought, there would be conflict and enmity. This would have been true, and in better form, and it would not have offended anyone, because, while the principle would have been recognized, no one would have believed it applied to him.

One of the difficulties those connected with a thing experience in writing about it, is to give it due perspective. If too near, they find themselves confounding practices with principles,

mistaking local makeshifts for essential methods. This is why railway men who write find it so difficult to separate themselves from particular practices; why their books are so full of special instances. They attach importance to a thing or not, just as they are familiar with it or not. Thus, titles are exalted or otherwise, according to their local environments; they write and speak that which they know. It is only by observation and study that they can overcome this provincialism. Railway men, above all others, require to be above local superstitions, the antipathies of trade, narrow prejudices and envy and hatred.

The vastness of the subject of railway carriage suggests the possible need of a department in our schools where its peculiar features and needs may be explained and its self-adaptive nature illustrated; a place where the teacher will be enlightened and free from local clamor; where proper distinctions will be drawn between prejudices and principles; between accident and design; between fundamental methods and makeshifts: where, in fact, demagogism and ignorance will give place to enlightenment.

The more generally it is recognized that railroad operations must be studied as a whole in order to understand particular parts, the better

equipped railway men will be and the more wisely these great properties will be administered. It was this belief that suggested the accompanying work, wherein the subject is taken up as a whole.

The accompanying book on Railway Organization and Forces is general in its application. It points out the principles to be observed and the objects to be attained in organizing and governing the forces of corporations. It describes, also, the great divisions of labor that exist on railroads and, generally, the duties and responsibilities appertaining thereto. But the organization and government of particular departments, it is proper to say, are so much affected by the organization and government of other departments that all must be studied in order to be informed in regard to any one. This fact is too often lost sight of. Men believe they can comprehend one department without studying all, just as a man can shoe horses without knowing anything about agriculture. Men often write me to send them a book telling about a particular branch of the service, as if such information were to be found apart in a particular treatise. The divisions of labor on railroads are exceedingly indefinite. The work is so interwoven, the duties of one department so merged in those of another, that all must be studied in order to

understand a particular one intelligently. Thus, the traffic manager, in order to co-operate with the operating department, or vice versa, should be generally familiar with the duties, obligations and powers of the other. Nor can the accounting officer fulfill his duties without being similarly familiar with the responsibilities and duties of the departments the accounts of which he keeps. And it is so in regard to the operation of trains, the handling of baggage, constructing the property, maintenance, and so on indefinitely.

In further reference to this volume the reader is respectfully referred to the Table of Contents immediately following which describes it with accuracy and in detail.

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CHAPTER I.

THE RAILWAY ARMY—CHARACTERISTICS THAT DISTINGUISH ITS MEMBERS—PRINCIPLES THAT PREVAIL IN GOVERNING IT—RELATION OF OFFICERS TO SUBORDINATES—QUALIFICATIONS REQUIRED OF OFFICERS AND EMPLOYES—WAGES—ECONOMY OF LABOR IN THE UNITED STATES AS COMPARED WITH OTHER COUNTRIES—METHODS FOR HEIGHTENING THE INTEREST AND INCREASING THE EFFICIENCY OF RAILWAY OPERATIVES.

The force that operates a railway is like an army. It is methodically organized and drilled. It has its commanders, its rank and file; its officers, sub-officers and privates. Its action is, however, peaceful and conciliatory. It strives at all times to preserve amicable relations with everyone.

The officers and employes of railroads are trained to obey in all matters relating to their business. In other things they are free. It is necessary that they should be obedient. The co-operation of a multitude cannot otherwise be secured.

Insubordination among railway men is as great an offense as insubordination in an army. A country thus cursed is in as great danger as if its soldiers were traitorous. In the operations of

railroads, the interest of the owner in the employe must be constant, intelligent and marked; upon the part of the employe, loyalty to the property must be sturdy, unswerving and apparent; the interests of the two are identical, and it follows that differences between them must in every case be equitably solved if patiently borne.

Rules and regulations governing trains and the station and track forces of railroads must have the force and effectiveness of a criminal code.* Disobedience endangers both life and property. It also prevents, here as elsewhere, effective and economical service.

All who enter the service of railroads do so on a perfect equality. They are at best merely experimental at first. But here equality ends. The energetic, capable, faithful and ambitious at once forge to the front. They do not need anyone to assist or favor them. Their merits are sufficient. It is a great mistake to suppose that anybody can get ahead or long keep ahead through influence. No one short of the owner of a property can maintain an unfit person in position. The natural law of selection operates in the railway service as it does everywhere else.

* Concrete rules and regulations governing the various branches, departments and bureaus of railway service, will be found in the books: "Railway Equipment," "Constructing, Financing and Maintaining," "Train Service," "Passenger, Baggage and Mail Service," "Freight Business and Affairs," "Disbursements of Railways," "Principles Governing Collection of Revenue," "General Fiscal Affairs," and "Fiscal Duties of Agents and Conductors."

It arranges and classifies the force and, sooner or later, assigns every person to his appropriate sphere of duty.

In railway practice each person must be adapted to the field he occupies. When he is not, the public and the owner suffer, because his deficiencies retard the efforts of others. Each must fit perfectly the place he fills, must be familiar with his duties, and able and willing to perform them effectively. Not only must he be physically and mentally capable, but he must be morally so. He must command the confidence and respect of his associates, his employers and the public.*

A railroad, to be effective, must be effectively governed.

Justice and wisdom must reign.

The highest as well as the lowest must be amenable to law and duty. The rights of the community, the interests of the owner and the welfare of the employe require this.

* Colonel Findlay, describing the London & Northwestern Railway, lays it down as a maxim that employes should be chosen with reference to the specific duties required of them; that the duties for which they are responsible should be clearly defined; that they should be thoroughly trained, each in his particular duties; that they should be fairly well remunerated, should be cheerful, contented and happy; that the supervision over them should be constant, thorough and wise. The English railways observe the practices of American railways in employing boys and young men in minor positions, who, through observation and the performance of their duties, are gradually fitted for those of a higher nature. Superior positions are filled, so far as possible, by promotion.

Opportunity to pursue private enmities and advantage must be minimized.

Everyone must be accorded his proper rights.

Investigation must precede judgment and wisdom and moderation must attend the execution of disciplinary practices.

These things require that there should at all times be intelligent supervision of the property; that those who labor, who evince wisdom, interest and faithfulness should be distinguished from those who do not; that those who pass judgment, who reward, or punish, should be dispassionate, resolute and wise. A company thus governed will never be made the pack-horse of private opportunity. A force thus ruled is invincible, no matter how tried.

The interests of corporations require that officers should treat their subordinates justly and impartially; should treasure their interests as their own; should not expect too much; should distinguish, kindly and impartially, between those who wish to serve their employer faithfully and well and those who are indifferent or disregardful; should remember that the arbitrary power they exercise is delegated to them in the interests of the corporation and must never be wielded except to advance its affairs. Many serious complications that have arisen between employes and corporations have grown out of a disregard of these simple and self-evident truths. Men not skilled in governing are prone to act hastily; to state their ultimatum without considering its

fairness or practicability. On the other hand, many embarrassing situations have been tided over by the tact and politic action of those in charge.

Men in every station of life possess the same general characteristics. They expect and appreciate courteous and kindly treatment, without reference to their environment. The most exacting and unreasonable respond quickly, or at least ultimately, to wise and judicious management.

The affairs of corporations require diplomatic action. Frankness and patience must mark the intercourse between officers and employes. This is difficult in those cases where it is sought to enforce unjust claims. But such occurrences are not common. Men generally believe what they do to be right. They are, as a rule, conscientious. They may be wrong, their action may be unjust and indefensible, but they are not conscious of it. They are perfectly sincere. But if it can be made apparent that they are in the wrong, they will acquiesce. A few obdurate and unreasonable men may persist, but the bulk will yield. Not immediately, perhaps, but ultimately. The policy to adopt, therefore, in such cases, is one of kindness and diplomatic reserve. Nothing is to be gained by acting impetuously or with arbitrary brusqueness. Men are not to be controlled in that way, or, if controlled, will resent it afterward, so that it is oftentimes more disadvantageous to over-ride their will in such a way than

to yield to it. Cheerfulness, not discontent, must follow acquiescence.

A railway officer, in his intercourse with his subordinates, strives to look at every question from the point of view of the employe as well as his own; sees the excuses for their action, even if he cannot justify them. It is only by such a course that he can govern effectively. Emergencies arise where temporizing is fatal, is unkind to the employe. This is oftentimes the case when men become demoralized by agitators and demagogues; become dissatisfied and captious without reason. Heroic remedies may be justifiable in such cases, may alone be able to reach the evil.

Subordination is a cardinal principle of organized labor—subordination to the employer, subordination to each other, according to rank and natural precedence. It is based upon a just conception of the rights of men in their relation to property. All men, however, are entitled to justice and humane treatment.

The discipline of corporate forces is as absolute as that of a man-of-war. Obedience to superior authority is unqualified. It is, however, the privilege and duty of every subordinate in emergencies, when an order is given, to make such suggestions as the circumstances of the case demand. Here his responsibility ends, except in criminal cases.

An order, once given, must be obeyed. Absolutism, such as this, involves grave responsibilities. It presupposes skill, accurate knowledge and appreciation.

In the administrative department of carriers lack of discipline breeds insubordination, idleness and extravagance. It engenders kindred evils in the operating department, with the added element of danger.

It is necessary that the forces of a railroad should possess *esprit de corps*, coupled with interest, intelligence and courage which no event can deaden or divert.

While the discipline of corporate life is as absolute as that of an army, there is this difference between them: army life destroys the individuality of all below the rank of officer; corporate life intensifies the personality of subordinates by recognition and promotion. Everyone knows that promotion will follow intelligence, faithfulness and industry. The officers of railroads are drawn from the ranks. It is therefore for the interests of such corporations to build up the intelligence and morale of subordinates; to strengthen the force by careful selection and cultivation. Individuals should be taught to think and act for themselves in all cases where discretion can safely be allowed. They will thus be taught self reliance, and the exercise of prudence and good judgment.

The vast amount of work of a supervisory and mechanical nature that attends the operation of a railway renders it necessary to divide the force into departments under men especially skilled

and adapted to the work in hand. Practical experience is required. This was not thought necessary at one time, but it is more and more apparent each day that the officers and employes of railroads, from the highest to the lowest, must be schooled in the service; must have practical knowledge, born of experience and personal observation. The amateur here as elsewhere never comprehends more than a part of his duty. His vision is so restricted and his brain so clouded with conflicting conditions and interests that he cannot act advisedly. He is the creature instead of the master. In the early life of railroads it was a common occurrence for men to come into the service in high positions who had no knowledge, practically, of their duties. This was unavoidable. It is so no longer. Railroads cannot be operated by inexperienced men or theorists any more than a butcher shop can. The managers of railways, if they are to govern, to exercise wise control, to be respected in their office, must be practical railway men. Those subordinate to them must possess like experience.

A good railroad man cannot be made out of hand or of any kind of material any more than a good merchant can. It is a question of natural fitness and selection. However, in the hurry and confusion of business it is impossible to prevent improper men creeping into the service. With experience and greater leisure, however, they are eliminated, others taking their places who can be trusted and promoted. Thus

the service each day increases in usefulness and efficiency.

The presence of a man anywhere upon a railroad who is incompetent, or who cannot be promoted, is a menace, an element of danger. Ignorant or unmindful of his want of fitness, he will brood discontentedly over his lack of fortune until he comes to hate both his employers and associates. The sooner such men are eliminated from a service wherein progression is an element the better.

The obligations of officers and employes require to be carefully studied and conscientiously observed; a proper observance of the duty they owe to their employer, the public, and to each other, will tax to the utmost their moral and intellectual strength.

The work of those in the employ of railroads must be continuous, systematic and orderly. It is said that cleanliness is next to godliness. I think, however, orderliness comes next, because it is the most distinctive characteristic of the Creator. Cleanliness is largely conventional. But systemization or orderliness lies at the foundation of every beneficent thing, whether of nature or man.

The Greeks taught policy. We should add to it method. The latter must be practiced by those who lead, by those who hope to win favorable notice, who hope to achieve distinction. It is not a thing confined to any particular occupation or place. In railway employ it is as necessary in

the general office as in the machine shop; at the station as on the train; as beneficent in the department of buildings and bridges as in that of the track. There must be a place for everything and everything must be in its place. There is a time to do everything and a necessity that everything should be done at such time. Men in judging of the capabilities of others therefore make no mistake in giving great weight to qualities of orderliness and systemization.

Slothfulness and inactivity indicate worthlessness, and precede or attend decay of mental and physical faculties. They are evinced in a lack of method and system, just as the effective exercise of these forces indicates life and growth; one anticipates work, and seizes it at the right time and in the most effective way; the other makes no preparation and succumbs to difficulties instead of surmounting them.

In corporate life it is the unsystematic man whose cry is most importunate for more help, for additional assistance. The cause of his distress he does not surmise and cannot be taught. It is an inherent, fundamental difficulty. There is, therefore, no cure for it. Such men are natural "hewers of wood and drawers of water." They are not equal to any kind of place or power no matter how restricted the field or how abundant the opportunity.

The more capable men in business life are taught to comprehend and obey while young; they grow up in the service, passing from one

branch of usefulness to another, as they increase in knowledge and understanding. Thus, in the operations of railroads a train dispatcher is the better for having been a conductor or brakeman; a superintendent for having been an agent; a roadmaster for having been a track foreman, and so on through all the multitudinous departments and branches of the service.

Next to its traffic the most effective resource of a company is its officers and employes. The first duty of a stranger coming into the service, therefore, whether as president or brakeman, is to familiarize himself with those about him; to study their individual capabilities, virtues, rights and desires.

Every service should afford abundant material for filling its higher offices. It is better to promote an average man than to bring a better one from abroad.

The best manager is he who can achieve the greatest results with the material at hand. In railway practice the most important thing, from the manager's point of view, is the character of the men he has about him. The building up of his force is his constant aim; this he does by proper recognition and promotion. When he has occasion to fill an office he does not go elsewhere if there is a man that may properly be promoted or that with schooling may be rendered competent. By such a course he builds up and maintains the *esprit de corps* of the service. Any other course quickly destroys the

loyalty of the men and their effectiveness as a body.

The railway service is a miniature world. It is cosmopolitan. Every nationality contributes its quota, while all degrees of taste, cultivation and talent are represented in its ranks. Not all men are equal either in interest, industry or intelligence. Men of different temperament or nationality work with different degrees of intensity and effectiveness. The result, consequently, per unit of labor, is not the same. Rewards are, therefore, relative. The quantity of labor required per unit of traffic decreases with every improvement of the service. Every advance made heightens effectiveness and decreases cost. The incentive to improvement is, therefore, boundless. Nor is opportunity restricted: no one can say how far improvement may be carried.

The wages railways pay are necessarily moderate; but they are enough to secure competent and trustworthy men in every position where life and property are involved. But wages alone will not secure this if care is not exercised in selecting men. Where care is exercised fit men will be found in abundance who come within the means of the employing company.

In determining the manner of computing wages it is desirable that it should be based on the work done. It should be such as to stimulate men to achieve results; to make it to their interest to be industrious, expeditious and skillful. Upon a railroad this means more than the saving

in the wages of the particular man directly affected. It means greater utility of the property and the force; the handling of greater business at stations with given facilities; greater usefulness of equipment; the accomplishment of more work within a given time with a given amount of machinery; greater economy of mechanical applicances. An inefficient service means heightened expense, multiplication of locomotives and cars and increased facilities everywhere. What is the best method of computing wages? No uniform rule can be laid down. It will depend on circumstances. In one place it will be best accomplished by contracts entered into between the employe and the company, whereby the former agrees to do a certain thing for a certain sum—say the loading or unloading of freight, per ton or per car; in another place by piece work; in another place by a system of awards and prizes based on comparative results, and so on. All these methods are to-day more or less in vogue, and where intelligently supervised add to the efficiency of a service and lessen its cost.

The railway system of the United States, as regards economy of operation, has no superior. This is evinced in its expenditures for labor. The saving is not in the average amount paid employes, for that is much greater in America than in Europe and six times as great as in India. It is in the greater earnings capacity of employes. This superiority is not due to greater intelligence, zeal or experience entirely, but to

more economical methods of working; largely to the absence of the multitudinous safeguards that add so greatly to railway operations abroad. It is also due to fewer men at stations and on the track. This last is surprising, because European roads are more carefully constructed than those of America. Of this there can be no doubt. But our methods are simpler. It is largely due to the absence of the multitudinous host of signalmen employed by European roads, particularly in England. That our system is not generally as safe as theirs is probably true, but the saving accrues to the community as it enables carriers to handle a great deal of traffic that they could not do if their expenses were higher. The vital importance of this must not be overlooked. In advocating safety devices which require the employment of more men, the public must not lose sight of the fact that such measures restrict the practical usefulness of a railroad just so much. The carrier should be the judge in such matters. He is responsible. He alone can judge intelligently and wisely between necessary and ideal safeguards. He is more likely to be governed by a happy mean than the public, which only considers one side of the question. It is therefore safer to leave such matters to him than to make them the subject of doubtful enactments.

Outside the devices intended to add to the safety of life and property, the tendency of railway labor at the present time is in the direction of lessening the number and importance of high-

priced men; of increasing those of a lesser grade. This arises partly out of the consolidation of properties, but more particularly from greater experience and knowledge.

In endeavoring to ascertain the relative economy of railways in the employment of labor there is no formula that is fair as between different companies. Generally, it is probable, the train mile or the unit of gross earnings affords the best basis. The number of employes per mile of road affords no clue to the economy exercised because of variations of track and traffic. Nor is the simple counting of names of any value; it only serves to mislead. Under any plan the time worked must be reduced to days and months so that when we say a company employs a certain number of men, we mean the number fully employed. This method is not always observed. On the contrary, the number of names is oftentimes counted. The wide variations shown in the number indicate this. It is no unusual occurrence for four or five thousand men to be relieved in the middle of a month; no one is employed longer than his labor is needed; every expedient is made use of to cut down expenses. Much of the traffic which carriers are able to handle is directly dependent upon the efficacy of their measures in this direction. Every dollar that operating expenses can be reduced increases by just so much the ability of a company to do business.

In considering the relations that exist between the officers and employes of a railway and be-

tween the employer and those working for him, much thought has been given to the adoption of some practicable method whereby the interest of the employe may be increased. It is a well recognized fact that work performed under the stimulus of self interest is greater in quantity and of better quality than that of a perfunctory nature.

Men work according to the measure of reward in store for them. Wages are generally based on this. It is impossible, however, to distinguish nicely between those who average very high and others. More or less uniformity is unavoidable. Wherever this uniformity is not based on actual performance it is unjust to the employe and operates to the disadvantage of the employer. While the subject has received much attention, no solution of it has yet been found. It is purely a practical one, and must be worked out little by little, like every other great advance. Of particular experiments which have been made with a view to the discovery of some method of inciting the efforts of employes outside of and in addition to the incentive of pay and possible advancement, the experiment has been tried of offering special inducements to invest in the stock of the employer, thus giving employes a proprietary interest. In the case, however, of the low-priced employe the interest thus acquired is so limited as not to sensibly overcome the natural disinclination of men to do more than is absolutely necessary, or at least more than is called for by the letter of

the contract. Another plan is to divide a certain percentage of profit among employes upon the basis of wages. A defect of this method is that where such percentage is apportioned among all without regard to merit no special inducement is offered to an employe to excel.

Another plan which meets with more favor is that of awarding premiums for economy and usefulness. There are, however, several things connected with awards for economy which require careful consideration. 1. As regards the classes of employes who shall be eligible for such awards and the scope of the award. Thus, while we might reward an engineer for economy in the use of the oil dealt out to him, the official who purchased it could not reasonably expect a share of the amount saved in the purchasing of the oil, even though such saving might be the result of his shrewdness and care in buying. 2. While a section foreman might receive a premium for economy in the use of material, the supervising engineer could not be allowed a share in any saving which might be effected through the introduction of an improved system of track laying, or the relocation of the line of a road. 3. It might be desirable to reward a conductor for bringing his train through on time and in safety, but the superintendent could not be rewarded for the proper arrangement of his time card. I say could not, but in this I may be mistaken. It may be desirable and practicable to carry the system of rewarding

merit into every branch of the service, be it high or low.

It is apparent that no fixed rule can be laid down as to the standard or unit upon which to compute the saving effected by an employe. That which might be economy under one condition would be wastefulness under another. Each case must be considered by itself, and those whose duty it is to award premiums must be governed largely by their judgment and the particular circumstances of the case.

Moreover, in awarding premiums another difficulty arises, namely, to discriminate against economy that in the long run increases cost or endangers life or property. Any temptation to lessen present cost at such expense must be carefully guarded against. Economy cannot, especially, be exercised at the expense of safety and efficiency. An engineer who, to save fuel, should incur risk by reducing the speed of his train on a level track or up grade, making up for lost time by increased speed on down grades, cannot be rewarded therefor.

Similar difficulties are met with in awarding premiums for building up business. The amount of increased traffic that results from increased effort on the part of the agents of a company can never be exactly determined. Averages only can be taken, and these for a series of years. This requires elaborate and more or less fallacious statistics. All the circumstances affecting the traffic require to be carefully considered; it will

not do to have one class of business increased at the expense of another in order to earn a premium; nor must privileges be extended to the detriment of the carrier, and so on. Every phase of the subject must be considered. The demoralization which would result from favoritism in granting awards requires also to be carefully guarded against. And, finally, it can not be admitted, even tacitly, that in granting awards, no matter what they may be, the company acknowledges that its employes are not expected to do their best under all circumstances.*

*I do not attempt to treat the subject of the obligations of employers and employes fully here or elsewhere. It will come up incidentally again and again. Generally these obligations may be summed up in this—they are mutual and reciprocal. The interest of the employer in the employe is constant, loyal and earnest; the interest of the latter must not be less marked if he would win permanent success.

CHAPTER II.

EVOLUTION OF LABOR—EMPLOYER AND EMPLOYE—THE INTEREST OF THE EMPLOYER IN THE EMPLOYE—THE NECESSITY THAT THE LATTER'S LOYALTY TO THE MAN HE WORKS FOR SHOULD BE THOROUGH AND SINCERE—THE SEPARATION OF THE MAINTENANCE OF A RAILROAD FROM THE BUSINESS OF HANDLING ITS TRAFFIC.

The impossibilities of to-day become commonplace to-morrow. It is the unexpected that happens. That about which no one dreams, for which no one is prepared, which does not come within the compass of common thought, is what actually occurs. The happening of the unforeseen, the occurrence of a seeming impossibility, finds apt illustration to-day in the vast associations of the laboring classes; in the banding together of enormous numbers of men scattered over vast expanses of territory, and involving in their secret acts and intentions purposes of the greatest importance to the peace and material prosperity of every condition and class of society. These bodies, associating together and acting as a unit, present phenomena never before seen on a scale so vast, or involving interests so pretentious. To the extent that they are able to secure the permanent betterment of labor, by natural

and equitable processes, every class will be benefited, according to the maxim in philosophy that the unit of the social structure cannot receive good without the whole participating therein. Anything that promotes the interest of the laborer cannot fail to be of advantage to the capitalist, because the interests of the two are identical.*

The great enterprises characteristic of our time require the co-operative assistance of vast armies of intelligent, faithful and willing hands. In the greater ratio that these qualities are evinced, the higher and more perfect the result. But labor cannot secure any permanent advantage not warranted by its value or the necessity that exists for its product, any more than capital can force a return out of proportion to the demand for it.

Immutable economic laws prescribe that labor, no matter how perfect its organization or widespread its appliances, cannot, except temporarily, coerce capital beyond the point of reciprocal interest.

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*The accompanying chapter was suggested by the great strike of railway employes which occurred in 1886. It threatened to close up certain railroads for a long period. The gravity of the situation suggested the inquiry as to the status of railroad property under such circumstances. This suggested still others, namely, the relation between employer and employe, the feasibility of operating railroads like canals and toll roads by renting them to private carriers (so as to reduce the number of employes), the actual cost of maintaining a property apart from operating it, etc. This latter phase of the subject is treated of in the volume on "Constructing, Financing, and Maintaining."

Labor, to exist at all, must act in harmony with those who give it employment, and in due subordination to the interests of society as a whole. It must respond quickly and intelligently to the necessities of its environment, just as capital, in its turn, must occupy the avenues of trade open to its profitable employment if it would not see them rendered useless or destroyed.

The world owes its civilization to the ability of capital to find safe and profitable employment, coupled with the uncontrolled choice exercised by every man of working where and when he pleases.

Compensation for labor is in proportion to the income derived from its service. If the margin is small in one instance, it will be so in the other. If the gain is excessive, the reward of labor will adjust itself thereto, or the law of supply and demand will assert itself to lessen the profit by multiplying production.

The strife of capital to find profitable use gives extended employment to labor and at the same time reduces the cost of the thing produced. Thus benefiting mankind, first, by giving work to those who need it, and second, by enabling them to live cheaply and well afterward.

Efforts of labor to put up the price of wages without reference to its value and the demand for its product, cannot but result disastrously. Capital is quick to respond to any natural scarcity or call for labor, but becomes moribund under coercion.

The condition of the laborer, and of the employer as well, has steadily improved under the benign influences of peaceful and co-operative effort. These conditions are not improved by artificial associations of labor seeking (through combinations) to coerce the employer. The same may be said of capital in its relation to labor.

The elemental forces of labor and capital, in order to exist and prosper, must go hand in hand, each responding to the demand that exists for its use, satisfied with such just and reasonable compensation as the equities of the case warrant.

The conditions of the industrial world are nowhere alike, and the necessity for man's work can never be made dependent upon arbitrary schedules or mathematical formulas. The laborer must be able to respond to the urgency that exists for his product, and his advancement depends upon his ability to give individual expression to his ambition, by his strength, experience and intelligence.

If the brains and physique of men were uniform, hours of work and compensation might be made so. But this uniformity would not, even under such circumstances, extend to different classes of labor. In some instances six hours of work exhausts, in others sixteen are possible. The number of hours is dependent upon the ability and disposition of the worker, and the necessity that exists for his labor.

The world owes its advancement to the individual effort and ambition of those men who do

more and better work than their fellows. It will recede when there is no longer incentive for such effort. The energies of such men can not safely be clogged or restricted. To do so is to diminish the comforts and happiness of mankind. It follows from all this that associations of men, (whether of capitalists or laborers) acting under arbitrary rules which disregard the varied conditions governing the world's growth, must prove injurious to the community generally, and, in the end, to those immediately concerned.

The association of vast bodies of laboring men under leaders clothed with arbitrary power, breeds among capitalists apprehension lest the equilibrium between labor and property be destroyed thereby. Ability to precipitate strikes over extended territories and involving thousands of men, is not a power that can be safely entrusted to any man or body of men. Its abuse follows as a matter of course.

Civilization and its comforts are the products of harmonious action between capital and labor; of the freedom of man to do as he pleases so long as he does not molest his neighbor. The moment that either labor or capital dominates, from that moment the downfall of both begins. In our great Republic we have so much freedom that it sometimes seems to be in danger of degenerating into license; of giving birth to fatal heresies. The attempt to combine the labor element of the country under particular men, without reference to the rights and equities of employers, is an

illustration. Such an effort would mean, if successful, the subversion of the rights of everyone not able to resist its concerted onslaught. It says to capital, "You must be governed by us, you must permit us to fix the conditions of your business, or we will destroy you." From whence arises this spirit? Is it the result of too much liberty, or is it the product of oppression? Was its primary object to rob capital of its prerogative, or was it laudable and proper? Has it grown out of abuses, or is it a struggle for supremacy merely? Did it have its origin in the brains and hearts of honest (however mistaken) men; in some real or imaginary grievance, or in the purposes of demagogues and knaves? No two, it is probable, will agree as to the cause. But whatever it may be, the betterment of labor is not to be attained by making it despotic. Labor, to be successful in its ambitions, must be in harmony with the commercial instincts and individual freedom of mankind.

In England at one time, before 1824, it was considered felony to form combinations of labor such as the unions which are now so general in that country. Such unions are, however, no longer regarded by capital with an unfriendly eye in Great Britain, nor will they be in any country when their action is conservative and when, moreover, they are able to carry out the agreements which they enter into, or may be held responsible if they do not. Arrangements must be equitable. If employers are to be bound by agreements they enter into, labor unions must be bound in like

manner. Employers as a rule observe their contracts (they must do so), but the unions in many countries have reserved the right, or, if they did not reserve it, have exercised it, of breaking their agreements at pleasure. There are, of course, exceptions to this rule. Labor unions, to be effective, must be governed by individual conservatism; they must be as prudent as private persons. Because they constitute a group they cannot break contracts any more than particular individuals can and retain their good name or the confidence of those with whom they deal. Wherever labor unions are in disfavor it is largely due to lack of conservative action, including that of not doing as they agree. In order to obtain some temporary end they have broken their agreements, thus forfeiting great and permanent advantages by losing the confidence of the community, but more especially the confidence of employers. To secure the influence they desire unions must be governed by conservative action. Then employers will enter more freely into agreements with them. But these, whatever they are, must be voluntary. Both capital and labor must be free, and no public board of arbitration, however well administered, can be wise enough and disinterested enough to exercise government over these two great elements of industry. Boards of arbitration may be useful in their way as auxiliaries, but only thus.

Employers must not look to autocratic forms of government for relief from labor upheavals and

other social disorders, any more than labor must look to communism for relief from the exactions of capital. The cure lies in better laws and in the more uniform and intelligent administration of those that already exist. Disorders are to be remedied, so far as they are attributable to bad government, by raising the standard of law makers; by eliminating from political influence irresponsible and unfit persons. In this direction lies the secret of better government of a representative character. Such form of government, to be of a high standard, must emanate from men of conservative instincts, accustomed to the exercise of judgment and familiar with the art of governing. We can not expect persons who lack these characteristics, or who have not shown that they possess them, to make faithful and wise law makers, any more than we can expect them to make faithful and capable bank directors or good sea captains. And men in order to select trustworthy and worldly wise agents, must themselves be trustworthy and worldly wise. All not thus fitted must be excluded from participation in government until such time as they acquire the needed qualification, if good government is to be attained.

The movements of great bodies of men excite interest and speculation. The purposes of labor acting through organizations and guilds are a matter of concern to everyone. Their power, if wisely exercised, is not fraught with harm, but if short sighted or vicious is pregnant with evil.

The strength of organized labor has nowhere evinced itself with more startling vividness than in its demands upon railroads and in its efforts to close these great avenues of business when its exactions were not complied with. The situation, in this respect at least, is no longer speculative. We have seen the two forces, capital and labor, here arrayed against each other, in a life and death struggle. Before that the closing of a great railroad seemed so improbable as not to come within the domain of thought, and yet, through the fulminations of one man, this seemingly impossible thing actually occurred, so far as employes, acting in concert, could accomplish such a result. There can be no doubt that, through the upheavals of labor, railroads may at any time be paralyzed for the want of some one to operate them. What does this portend?

If the time should ever come when men cannot be found to operate railroads who will serve their employer loyally, will it be possible to find a substitute for such disaffected servants? Will it be possible to carry on the business of railroads without their assistance? Yes. As a matter of fact, there is no more reason why the owners of railroads should operate their properties directly, as at present, than there is that the government should operate omnibuses and hacks. It was not designed in the first place that they should so operate them. The practice is a perversion.

Man is an adaptable animal, and quickly adjusts himself to his environment, and if it ever

becomes apparent that a loyal and trustworthy force cannot be found to operate railroads, a substitute therefor will be found. The proposition is startling, but not more so than the organization and growth of the corporations themselves or the organized force they employ.

The means by which owners of railroads may manage their properties without employes, or at most with only a few faithful and skillful servants, are numerous. That, however, which suggests itself as being most feasible is the subletting of their business; the renting of their tracks and facilities to others. As a matter of fact there is no more reason why a railroad company should run trains than there is for the state to run steamboats. Quite the contrary. There can be no doubt that water transportation is carried on more effectively and economically by individual enterprise than it could possibly be by the state. The latter wisely confines its efforts to promulgating rules and regulations, and (in the case of canals) to the simple duty of keeping the property in repair. Why may not railway companies equally restrict their efforts? Why may they not confine themselves to the duty of maintaining the property and governing the traffic passing over it? Why may they not arrange with the community to lease their tracks, sidings, warehouses, docks, telegraph lines, roundhouses, shops, water stations, fuel sheds and other paraphernalia, receiving in return therefor a reasonable rental? Individual carriers and limited

companies, formed especially to operate trains, furnish supplies, repair machinery, or handle business, would, under such circumstances, quickly spring up. Our traffic by water is thus carried on. If railroads were thus administered, men would, according to their taste, acquirements, or capital, engage personally in some particular branch of the business. Each individual would pursue his venture untrammeled. He would find it both possible and profitable to utilize his family and friends in the conduct of his business. In this way he would be able to command the labor necessary to the conduct of his business with despatch, at a reasonable rate, and with such intelligence, continuity and loyalty as the case demanded.

Under such a condition of affairs, the more intelligent and enterprising employes of our railroads would sooner or later become purveyors, while the dissatisfied and worthless, or those disposed to depend upon the efforts of others rather than upon themselves, would drift off into other and simpler employments. Particular men would own, or operate as lessees, the warehouses, machine shops, trains, and fuel and water stations along the lines of our railroads, just as particular men own or operate express wagons, hacks, gurneys, trucks, livery stables, and machine and blacksmith shops in our towns; or operate or repair boats.

The changes necessary to bring about these conditions would require preparation in order to

avoid confusion. They would not come instantaneously, or affect the whole service at once. Railway companies would first sublet that portion of their property which seemed most easy and practicable for others to operate, and as the necessity for their retiring from the labor market became more and more noticeable, or its advantages more and more apparent, the process of subletting would go on, until it extended to the property as a whole, save perhaps its maintenance. And in regard to the latter, that would ultimately be done by private parties under contract, as it could undoubtedly be done more cheaply and effectively than by the owner directly.

Finally the owners of railroads would neither know nor care who used their properties, so long as their regulations were observed and the tolls paid. The nature of the traffic would no more interest them than the business men along our streets are concerned in the traffic of the teamsters who pass to and fro. Tolls would be based on the value of the service, while the profit of the lessee would depend upon his zeal and intelligence. He would pursue his vocation under peculiarly favorable circumstances and would be free from the embarrassments and suspicions which beset railroad companies.

The possibility of railroads being thus operated will strike the reader at first sight as impracticable. However, there is no insurmountable obstacle in the way. We see things quite as startling occurring about us every day. Men

are peculiarly inclined to experiment; to adapt means to ends. All forms of government are largely experimental. The government of the United States was based on a theory. Its methods and conduct were at first wholly experimental. These experiments have proven, in many cases, creditable to the discernment, intelligence and honesty of those who suggested them; in others they have proven directly the opposite.

The operation of railroads and manufactories by their owners is only possible so long as the force engaged in carrying them on acts in harmony with the proprietor, with the single object of achieving success. The moment owner and employe are no longer free agents to carry out as individuals in harmonious accord the purpose which seems best to them, that moment labor will cease to find employment. Capital will not seek investment where profits are dependent upon a thing so uncertain as the caprice of men acting as a unit, or without immediate and special reference to the rights of the employer. Labor must conform to reciprocal conditions in harmony with the general good. In doing this it best advances its own ends.

The solution of the labor problem, so far as it refers to railroads, will be found, it is possible, in leasing these properties in the manner described to small proprietors instead of attempting to operate them as a whole. The scheme is practicable if the emergency should ever arise.

The idea is not a new one, but as old as the railroads themselves. It was the original intention that the owners of railroads and the persons who operated them should be distinct, or partially so. Thus the laws of Great Britain provide that railway companies may carry the traffic or may allow others to do so. It was originally supposed that railroads would be used very much as our canals are; that the owner would merely look after the property; that its active operations would be carried on by others. Nor has this idea been allowed to fall wholly into disuse. Thus the number of private freight cars on the railroads of England is much greater than those owned by the companies. The proportion is even greater in some of the other countries of Europe. On some of the lines of Great Britain proprietors of collieries use their own engines and carriages in preference to those of the railroad company. In England a proportionate reduction is made in the rate when shippers provide the facilities. In the United States the owners of cars are allowed mileage therefor. The enormous use of private cars in England and on the Continent evidences their advantages. Theoretically, it would appear to be otherwise; thus, the Royal Commission of 1867 recommended that all cars owned by private parties should be bought by the railway companies. But instead of carrying out this suggestion, their construction and use have increased rather than diminished. This illustrates the difference between theory and practice. It is only neces-

sary to go a step further and encourage the owners of private cars to provide engines to haul them (or permit others to do so), to introduce on our railroads the practices in vogue on our highways and canals.

The fact that no effort has ever been made to carry on the traffic of railways apart from ownership is evidence against its general desirability. But notwithstanding this, economists have professed to see in such a separation a solution of the railway problem; the possibility of making competition upon railroads as easy and universal as on canals and rivers.

If separation of ownership from operating could be brought about upon our railroads, the division of labor as between the owner of the property and those who conducted the traffic would, undoubtedly, tend to lessen the duplication of railroads. It would also silence public complaint.

Such method of operation finds recognition in the present day in the use of tracks jointly by two or more companies, in the interchange of vehicles by railroads, and in the private ownership of cars.

The work of separation would require careful systemization. It is not impossible of fulfillment, however. In such a "division of the service lies the solution of the railway problem. The business of constructing and maintaining a road is one enterprise. The business of carrying freight over the highway thus constructed is

another and distinct business."* Mr. Hudson believes the law-making power "should restore the character of public highways to railways, by securing to all persons the right to run trains over their tracks under proper regulations."† The rules and regulations governing the use of railroads by private carriers he would have enforced by the company owning the property. He would allow each company "to provide inspectors to secure the safety of rolling stock, and to exclude all rolling stock that did not meet the requirements necessary for safety and dispatch, and to have authority to license qualified engineers and conductors." These regulations he would have "made the subject of direct and specific legislation. The law might establish an authority to direct the motion of trains, and enact penalties for disobedience. It might provide a system of inspection for all cars and engines, and forbid the use of those which are worn out or unsafe. It might establish a system for licensing engineers and conductors, just as it now does for licensing masters, pilots and engineers of ocean and river crafts."‡ These are matters of detail. If the necessity for operating railroads in this way should ever arise, the manner of operating them would find easy solution. The rules and regulations governing water carriers justify such belief. "The law of every civilized

* J. F. Hudson, "The Railways and the Republic," page 372.
† *Ibid*, page 360.
‡ *Ibid*, page 367.

country has a system for testing and certifying the efficiency of men entrusted with the water craft, and when the corresponding risks of the two systems of transportation are considered, the efficiency and safety secured by the laws regulating water transportation do not compare unfavorably with those attained under the system of monopoly on the railways."* Mr. Hudson, who is intense in everything, does not believe the carriage of traffic by the owners of the railways is necessary to their efficient operation. "Unquestioned control of trains, the same watchfulness, obedience, and care in running them, the same precautions for the repair and security of engines and cars can be attained under free competition as under a monopoly."† This is at least problematical. It is the difference between concentrated responsibility and a division of responsibility. The subject is not so simple as he would make it appear. It is exceedingly intricate. Nor is it probable that such solution of the question is desirable so long as the owners of railroads are left free to operate their properties untrammeled. Inability to trust those who work for them, or undue harassment upon the part of the government, is, it is probable, the only thing that would induce railroads to take such a course.

It is a common belief in America that carriers lose no opportunity to oppress the public. Intelligent men need not be told that this is a delusion.

*J. F. Hudson, "The Railways and the Republic," page 368.
†*Ibid*, page 368.

The association of interest between carrier and patron insures harmony of action and an equitable distribution of the burdens of transportation. But while a division of the work as between owners of railroads and separate carriers would not improve or cheapen the service, such an arrangement may be rendered necessary by unfriendly legislation, popular prejudice, or undue combinations of labor.

Those who look to the government as the source of all good, will ask why railway companies should not, in the event they find it impracticable to operate their properties because of labor complications, turn them over to the government. The answer is that governments are unfit to manage commercial enterprises.* Nor would such transfer lessen the evil. It would augment it. Governments owe their strength and fairness to individual members of society. If these, acting singly or in concert, will not allow owners of railroads to manage their properties successfully, it is not probable that they would allow the government to do so. The latter, to be sure, possesses means of protecting itself against aggression that private companies do not, but wherever the disturbing element forms a part of the government itself, its control is not likely to be effective or wise.

An emergency requiring the separation of ownership from management of railroads may never arise. Let us hope it will not. Everyone

*See book "Economic Theory of Rates."

is interested in preserving the *statu quo*. There may seem to be antagonisms between labor and capital, but they are only seeming. Labor is interested in protecting capital in all its just rights and prerogatives; in permitting it to manage its own affairs in its own way in harmony with the best good of all concerned. Capital, on the other hand, is vitally concerned in granting to labor its just rights.

A railway strike invites many curious situations. On such occasions the community does not abate a jot or tittle of its claims. Thus, it continues to press for lower rates, for better accommodation. This while the employe claims higher wages and perhaps less work. The two are not consistent with each other except upon an equitable basis. Low rates, it is manifest, mean moderate wages, as few employes as possible, cheap material, efficient service. The reverse means restricted business, poor accommodations, possible bankruptcy.

It should not be forgotten, in this connection, that the cost of operating railroads is ultimately paid by the community. The owners furnish the property. The community pays for working it. No business that does not pay the cost of operating can be done. Anything that increases the cost of working is, therefore, a hardship to the community.

The situation of railway employes, in order to secure the highest results, should be secure and their wages reasonable and such as the equities

of the service warrant. To increase wages beyond this point, is to curtail, correspondingly, the usefulness of a property. There is no escape from this dilemma. Abnormal or forced levies upon railroad companies or manufacturers must be met by reductions elsewhere. Interference with natural laws governing them retards their usefulness and lessens their value to all concerned. Compliance with unjust demands for higher wages or fewer hours of labor involves hardship to the producer and consumer, as well as the carrier. The bond of sympathy and interest between them is complete and irrevocable.

In considering the situation, real or prospective, we have not, up to this point, seriously thought of the temporary cessation of railway traffic because of labor complications. The idea that a railway may cease operations has no more occurred to us than the thought that the Mississippi may cease to flow. But it is apparent that the power exercised by labor organizations, if unwisely directed, will not only render the stoppage of railroad properties possible, but probable. Under normal conditions the stoppage of a railroad would, of course, be impossible; the people would not tolerate such a thing. But it is possible to conceive of conditions where the people would be as powerless as the carrier to prevent it. It is possible that the community, quite as much as the owners of railroads, may recognize the necessity of closing them, just as we close a warehouse or manufactory when it is

no longer practicable to operate it. It is possible that in this way, and in this way alone, the growing diseases that afflict corporate life may be cured. The remedy is heroic—but may we not require an heroic remedy?

For many years the only contingency which prevented the operation of railroads was that of war. But through the developments of a day that which was before thought to be impossible occurred.* Thus, the operation of a great property, traversing four or five thousand miles of country, was suddenly stopped at the command of its employes. This stoppage was followed by acts of violence and the destruction of much of the property of the railroad company. The striking employes did not claim they had suffered any injustice. They sought merely to avenge an insult offered to a brother employe elsewhere engaged. If men will act thus hastily, will thus unitedly offer themselves as a vicarious sacrifice, to what lengths may they not go in response to a personal grievance?

It is possible, nay probable, that with time and thoughtful consideration, labor unions, including those affecting railway employes, will be carefully organized and will act with great moderation and wisdom in all they do. These organizations were originally benevolent. But some of them ended by making the coercion of capital a cardinal tenet of their faith. The power they

*I refer to the stoppage of the Missouri Pacific Railway by the strike of its operatives.

possessed, in some notable instances, made them arbitrary and autocratic. The exercise of such a disposition is inconsistent with the prosecution of trade, and can only end by destroying the industries it menaces.*

The prosperity of the world evinces the wisdom and moderation of capital. It is based upon individual freedom and action. Its perpetuation is possible only under such conditions. Labor cannot throttle it as it would an unruly ox, but must seek its ends by fair representation. I do not wish to be understood as saying that labor may not have cause of complaint. But that does not make unjust action on its part necessary or defensible. Absolute justice is an impossibility. The evils of which labor has complained, and which it has in some instances sought by physical force (by preponderance of numbers merely) to remedy, would have corrected themselves without the aid of such force, and when so corrected would have proven lasting and beneficial.

*I do not wish to be understood as condemning labor unions. But, in so far as any union or association of men tends to make an employe disregardful of the interests of his employers (brings some other interest between the employer and employe) or makes the employe disloyal to the man he works for, it is not in harmony with our times and the necessity that exists for concentration of capital and labor. The value to employes of railroads of exercising wisdom and moderation in their unions has been aptly illustrated by the Brotherhood of Locomotive Engineers in the United States, a successful organization extending over many years. The organization owes its continuity and success to the fact that it has been slow to take umbrage and has, in the main, been conservative in its actions. Other important instances might be noted, if necessary.

Our age is one of evolution and adjustment. The times in which we live are not in harmony with the practices that governed the world in early days. Our governments are based upon numbers; our condition upon numerical majorities. Equities are lightly regarded. This is the case in political matters; it is sometimes sought to make it so in commercial affairs. Thus vast numbers of laborers will not only exercise the right of refusing to work, but claim the right to compel others to cease work. In this way the whole structure is threatened. Similar conditions at an earlier age, when industries were isolated and required only the employment of a limited number of men, involved no general or prolonged hardship; but with the vast concentration of capital and labor, characteristic of our time, such spirit threatens the overthrow of society itself. It demoralizes. Moreover, in the case of railroads it involves, incidentally, accidents, delays, inadequate facilities, irregular service, incompetency, neglect, bankruptcy. How shall it be stayed? It is probable the united intelligence, honesty and patriotism of those who work for railroads will correct the evil, but if this should not be the case, then capital must readjust its affairs to conform thereto. This it may do by the rental of its property, as I have suggested, or by ceasing to operate until such time as business may be resumed under happier auspices.

The temporary closing of railroads would not be an unmixed evil. The silence that would

follow such an event throughout the world would be conducive to much calm reflection and wider appreciation of the relation of cause and effect. The struggle would be a passive one, and, therefore, all the more beneficial. The act of the employer would be merely negative. It would not generate new hatreds, nor intensify those already existing. No one's liberty would be threatened by it. It would be an instructive sequence to the history of a period that propagated sentiments destructive to the rights of property and the freedom of individuals. Under its mollifying influences we should all acquire added wisdom. The employer, while surveying his unemployed property, would be certain to remember and appreciate the mistakes he had made, if any, in the organization and government of those under him. If he had neglected to make their interests his own, we may be certain that the termination of the conflict would not find him ignorant of the fact. The employe, on his side, would find it extremely difficult to subsist without earnings, however he might punish his employer; he would learn how trifling are nominal afflictions compared to those which follow in the wake of inconsiderate and revengeful action. The community, on its part, would receive a valuable and needed lesson. It would learn that the prosperity of railway corporations is necessary to the prosperity of the land. Railroad owners would learn to inquire earnestly and intelligently into the affairs of

their employes wherever they had been remiss in this respect; employes would learn how much wiser it is to suffer a little than to lose all; the people who are so quick to criticise railways and their methods, and the honesty of those who own and operate them, would have abundant leisure to study their own disposition to overreach their neighbors. Much good, it is probable, would accrue to all concerned. Such a state of affairs may never occur. Every patriotic person must hope so. It presupposes abnormal conditions; a species of vertigo; a derangement of the circulation; a nightmare, wherein many strange and hideous things would be seen.

In considering its possibility, however, the question suggests itself, what do our labor organizations portend? Is their development progressive or otherwise? Are they the outgrowth of political demagogism, or have they their origin in some serious commercial or social evil? If the latter, is it in process of extinction or development? If in the latter, how is it to be remedied? The theme invites reflection upon the part of all who are interested in the growth and development of the world and the perpetuation of its civilization.

CHAPTER III.

RELATION OF RAILWAY EMPLOYES TO RAILWAYS—THE BASES OF THE REAL PROSPERITY OF THOSE WHO WORK FOR OTHERS.

No service philanthropists or others can perform for railway employes will redound so much to the advantage of the latter as a proper exposition of the relation they bear to their employers, coupled with the knowledge of the fact, upon the part of the employe, that the employer will, if left free to act, fittingly recognize everyone who works for him, according to the measure of his faithfulness and capacity. Self-interest will compel this. That there will be exceptions to the rule will not alter its truthfulness or force.

The railway world is so vast that no man, no matter how luminous his mind, or how many hours or years he may devote to its elucidation, can possess more than a limited knowledge of its affairs. His understanding will be general, not specific. This explains why the owners of railroads attach so much importance to the active co-operation of the force as a whole. It is only thus that they can learn from hour to hour the needs of the service; it is only thus that the work can be carried on properly.

In order to obtain this co-operative effort, the interest of the employe is stimulated in every way. The methods of accomplishing this vary somewhat according to circumstances and the wisdom, talent, experience and temperament of owners and managers. But generally it is by active identification of the employe with the employer, by fixed service, promotion, liberal wages and kindly treatment. This is no more than the employe may reasonably expect. But, while expecting it, he must remember that he owes a reciprocal duty; that if he expects recognition and protection, he must not array himself against his employer. He cannot limit his obligations to particular hours or duties if he expects his employer to trust and reward him. He must trust his employer and remember that their interests are mutual and to be measured by the rights and prerogatives of both.

A station agent is as valuable to a railroad company, in his place and according to the wages he earns, as the general manager. But he cannot combine with others to forestall his employer's interest or seek to coerce him into conceding an unfair advantage, any more than railway presidents can seek to coerce their employers and expect the latter to trust and reward them.

In general, that form of organization is best for corporate property that enforces the most minute responsibility and offers the greatest encouragement to those who work for it; that enables a company to know the measure of

faithfulness and capacity of its servants; that rewards the trustworthy and takes cognizance of the derelict.

The growth of associations and unions among railway employes brings to the problem of operating corporations a quantity previously unknown. These influences it is impossible to forecast. If not wisely governed, such societies will deaden in the heart of the employe all interest in the affairs of the employer beyond those of a mercenary nature. This truth cannot be learned too early by employes or be respected too implicitly. If it is not, the ultimate downfall of corporations is certain. Men who, through extraneous agencies, seek to gain unjust advantages, cannot too quickly learn that those who have money will not jeopardize it in properties thus threatened. Men will not put money into objects that exist at the mercy of those who have nothing in common with them.

It is probable that many labor associations have, at the bottom, a belief that the employer does not properly regard the interests of his employe. This belief is false. But in order to dispel it and, in doing so, break up such combinations as are subversive of the employe's interest, railways must actively interest themselves in the concerns of those who work for them. Their interests are jeopardized, not because they have been disregardful, but because their employes believe they have. This erroneous impression the owner must correct if he would not

have foreign and unfriendly agents meddling in his affairs. There are two ways in which corporations may and do manifest their interest in those who work for them. In America it is done by kindly treatment, the payment of high wages, continued service, promotion, and by making the employe self-reliant and independent. In many countries wages are unavoidably low, and so corporations eke out their efforts by small annuities and distress funds, and by special interest in the sicknesses, discomforts and forebodings of those who work for them.*

The vicissitudes of corporate service require a paternal form of government. The owner must be the father. Failure to recognize this will aggravate the growth of unfriendly labor associations.

No labor organization ever formed, no matter how great the provocation, can prove beneficial unless those in charge are men of such exceptional wisdom and probity of character as to make their interest in everything they concern themselves about a blessing. No labor organization can ever be beneficial that qualifies the

* Quite a number of railroads in the United States and Canada supplement the very liberal wages they pay by aiding employes in founding superannuation funds. Greater progress would have been made in this direction, it is probable, if the efforts made had been more sympathetically received by those intended to be benefited. There can be no doubt that the railway companies of the United States and Canada feel the liveliest interest in the prosperity of their employes, both while they work for them and afterward when old age and other disabilities have rendered them unfit for active service.

service or lessens the interest of the employe in the employer.

In general, employes are safer in the hands of the employer than in those of anyone else. His interest is permanent, material and fatherly.

The conception of the employer by those who work for him must be broad and charitable. Nothing is attainable without this. Employes must not be quick to believe they are treated unjustly, are overlooked or forgotten. They must be governed by reason. They must accept the conditions of life as they are. They must go ahead sturdily and cheerfully, believing that if they comprehend their business and are active in the discharge of it, their services will be recognized. They must also appreciate this truth: that those who are preferred are, on the whole, worthy of it; that while there are exceptions to the rule, they are unworthy of regard. Disappointed men, instead of repining, must seek by renewed zeal and attachment the recognition they desire. They must not seek, in such emergencies, through combinations, or otherwise, to force what they cannot peaceably attain. Force may operate to their advantage for the moment, but will result in lowering their status and otherwise unfitting them to compete with their fellow men. He can never hope to attain eminence, to become a leader, to be independent, to be self sustaining, who seeks thus to bolster his fortunes.

Unflagging industry and continual study are the only roads to preferment. All others are

makeshifts, temporary and incomplete. When men do not progress as fast as they think they should, let them work and study the harder; do more and better work. There is no other road to preferment.

For the development of railways we are indebted to myriads of men, scattered through the various departments of the service, each class devoting its attention to the branch with which it is directly connected. To these specialists we must look for future advances. Their usefulness may be enhanced by special interest manifested in their work, by care taken to foster it, upon the part of the employer.

No industry possesses greater scope for individual or collective effort than that of railways. Upon it hinges the growth of countries, questions of trade, the prosperity and comfort of communities, and the welfare of those who own and operate these properties. The service is susceptible of such vast expansion and is so interwoven with every other industry that a complete understanding of it embraces incidentally all the theories, practices, appliances and concomitants of commerce and trade.

In order that corporations may derive the greatest good from the knowledge of those in their employ, and that the employe shall receive the maximum benefit to be derived from a productive property, it is necessary that employes and officers should be schooled to act as a unit; to mutually trust and respect each other. Above

all, that they should learn to keep their minds free from suspicion of the acts or motives of each other or of their employer.

No corporation can prosper whose service is mechanical or perfunctory. Every day's experience in the operation of railroads emphasizes the value of unselfishness and chivalrous fidelity on the part of officers and employes. The truth of this was not fully understood in the early history of railroads. It is evinced to-day in the more careful selection of men; in a more kindly regard for their interest and welfare.

Nothing in the management of a railroad is more curious than the versatility of its servants or more divergent than their aspirations. One aspires to be its president, another its chemist; one its master mechanic, another its auditor; one will be proficient in the handling of trains, another in the organization of station forces; one in the building up of the track, another in some branch of traffic, and so on. These characteristics are subdivided and resubdivided indefinitely. A master mechanic considers the locomotive as a whole; a machinist some minor detail. The traffic manager studies how he may secure business; the superintendent how he may handle it; the accountant how he may secure authentic returns; the treasurer how he may prevent loss.

Diversity of talent and gradation of work characterize the service throughout; they are its life and the occasion of its efficiency. They are

apparent in the work performed; in improved cars and methods of handling freight, passengers and baggage; in betterment of the track; in heightened train facilities; in the telegraphic system; in the varied appliances of the ticket department; in the complex framework that has grown up for handling the accounts and finances of railroads; in ability to comprehend aggregations and to focus the talent, or its reflected image, of those in the service.

Each individual who works for a railroad pursues a specific thing. And herein lies his value. If he tried to comprehend it as a whole, his knowledge would be superficial and ephemeral. This truth is self-evident, and fitly represents the helplessness of a management not buttressed by co-operative intelligence; not loyally and zealously supported by the rank and file; not properly organized and governed. A vital question in the management of railroads is how best to secure this co-operation.

Railway administration is not materially different from that of civil government. It feels the same necessity of sequence and method in its operations and realizes, like it, the benefits of co-operation. In the operation of railroads it is kept constantly in mind by those who manage, that while they are the property of particular men, their affairs are so inextricably interwoven with those of the community, so subject to the vicissitudes of public opinion, that they must be governed with that fact in view. Nothing connected

with their affairs can be permanently concealed. Every act must, sooner or later, pass under the eye of the public. This requires that their methods should be such as to commend themselves to the judgment of honest and reasonable men. While railways must exercise the ingenuity practiced everywhere in business, all they do that concerns the public or the employe must be consistent and equitable. Any other course will quickly lose them the confidence of those upon whom they are dependent. No individual can pursue a dishonest course without bankrupting his character and fortune. This is even more true of corporations.

The integrity of railway officers and employes must be of a high standard. When overruled, they must, if necessary, be able to yield gracefully and, if necessary, lay down their trusts with the same promptness and cheerfulness that the representatives of constitutional governments do under like circumstances.

The general officers of a company are the focus of a myriad of active and enterprising men. The centralization of power they represent is not the result of chance, but of superior fitness, and is entitled to receive hearty recognition and support. And if, by chance, it is based for the moment upon unfair advantage, it should still receive recognition and support. It will be only temporary.

There can be no limit to the loyalty of railway officers and employes to the corporation they

work for. Nothing can excuse treachery. It cannot be excused on the ground of injustice or lack of appreciation of service. Railway corporations are both considerate and just in regard to the interests and welfare of employes. I know this. I do not speak by hearsay or as a theorist. I have been in their service for forty years, and have passed through the various grades of the service, commencing as a messenger. I therefore know. Moreover, I have for many years made the administration of railroads a study. No one can view the welfare of railway employes with greater interest and affection than myself. Long years of association have endeared everything that affects them to me. I do not, therefore, speak unadvisedly or superficially.

While it is the duty of railway officers to stimulate the zeal of those under them and to build up in them, by every possible device, a desire to serve the company faithfully, it is also the duty of subordinates to uphold loyally the hands of their superiors; to lessen their anxiety and lighten their load; to support them in their efforts to harmonize conflicting interests and otherwise assist in unraveling from day to day the vexatious problems that present themselves for solution. A sense of mutual dependence and support, based upon regard for the rights of employe and owner, animates the rank and file of every railroad where really efficient service is rendered. Commensurate results cannot be secured in any other way.

Those who work for railways must also accustom themselves to co-operate heartily and loyally with men of the widest diversity of character, faithfulness, temperament, experience and talent; must learn to overlook weaknesses; must help to build up that which is good, to eliminate that which is bad.

It is a well understood axiom in railway administration that an effective and loyal body of men can only be secured by developing the character of those in the service; by fostering in them a hearty desire to serve their employer; by stimulating their energies and ambitions by wise recognition. Frequent or abrupt changes are, therefore, avoided. It is only by long connection with particular lines of industry that men become impregnated with their spirit or capable of understanding their possibilities. It is only after long service that genius ripens in men. Frequent or unadvised changes, moreover, disturb the minds of men and lessen their interest in the achievement of the future. Those who work for others must not be removed needlessly; to do so is to unsettle a service and lessen the zeal of its operatives.

Mistakes that are not discreditable, or that do not result from inherent wrong, corporations do not judge severely. They are considerate of the weaknesses of men and charitable in their constructions.

The responsibilities of railway management are divided between officers and employes.

They share equally in results, be they good or bad. An officer cannot lessen the importance of his subordinate by ignoring or belittling him; cannot lessen the necessity that exists for his presence. Directly the contrary. Were he to do so, it would be apparent to the owner, that his servants were not properly recognized, and that due regard was not taken to secure such transmission of authority as the safety of the property required.

Men fall, naturally, into mechanical habits; habits of self-complacency and sloth. We labor, and behold—a mouse. Only men of sublime resolution and courage keep on working, keep on advancing. A hundred men start in the march of life to-day; twenty years afterward, when we revisit the scene to mark their progress, the horizon is vacant, except, perhaps, upon its extreme verge we see a solitary figure, growing more and more luminous with each passing hour. This is a Man. The other ninety-nine we discover after awhile at our feet, quarreling among themselves as to who is the most deserving; who has been most sadly used by fortune. The solitary man is he who has carefully regarded the interests of those he has served, who has depended upon his own efforts, has been studious, faithful and untiring. The others have sought success by an easier and shorter road.

Finally, railway employes must remember that the conduct of great enterprises is possible only so long as capital reposes confidence in the good

intention of labor; in the disposition of men to work when and where they please and for such wages as may be mutually agreed upon. Wages must finally rest upon the law of supply and demand. They cannot be fixed arbitrarily. When capital can no longer make terms with individual laborers, great enterprises will cease. Enterprises cannot be permanently carried on by operatives whose loyalty is stinted, or whose freedom is subject to the arbitrary will of others. No man can serve faithfully two masters, and if, unhappily, it should ever become apparent to the owners of railroads that their employes are not loyal to them, present methods of administering these properties will be changed. There can be no other course.

CHAPTER IV.

GENERAL OUTLINE OF METHOD OF ORGANIZATION OF THE MANAGING AND WORKING FORCES OF A CORPORATION.

[NOTE.—The particular purpose of this chapter is to point out wherein the problem of operating railroads may be studied to advantage by those actively identified with them, and to suggest some of the things necessary to the efficient and economical management of these properties, not embodied in their printed rules and regulations. The writer has no new theories to advance. What he has to say is based on principles well understood by economic writers as affording the basis of good government everywhere. The fact that these principles are applicable to railroads as well as governments is not, however, everywhere recognized. What I have to say is general; it does not refer to any particular country or property.]

Railroads invite, in their operation, ability of the highest order: the genius of the inventor; the wisdom of the philosopher and statesman; the patience of the student; the skill of the financier, and the courage and practical ability of the executive.

The magnitude of the railroad system makes the disposition of its affairs equal in importance to those of governments. Its history and methods are new and in a formative state and, because of this, afford an inviting field. The dangers that menace it require for their elucidation the highest wisdom; the questions of general interest that attend its conduct invite the attention of

the student; the building up of its affairs invites the resources of the financier and capitalist; the conduct of its physical operations invites the practical skill and talent of men of the highest executive talent. Back of these leaders, there is marshalled the operating force, a compact and ambitious army of men, from which the general staff is recruited. The organization and government of this great force, made up of officers and employes, demand the talent and temper of the statesman rather than of the autocrat; the checks and balances of a constitutional government rather than the arbitrary methods of a despotism.

The railroad subject, in its early history, received but scant attention, except from men little versed in great affairs, who were not at all aware of the probable growth or requirements of the service. The railway succeeded an industry of restricted scope, and inherited the operatives that the abandoned business threw out of employment. They gave color to its early history and shaped, in rude manner, its first forms. Men of courage and rugged outdoor life, used to rough usage, they were more familiar with the crack of the whip and the splash of the mountain torrent than the responsibilities and duties of an executive. Their processes were simple and practical, they knew what they knew, and neither invited nor tolerated discussion; it had not been necessary among those who operated canal boats or drove stages, and they neither appreciated nor understood its value in the case of railroads.

Hence the origin of the belief that anything written by railway men was contrary to the Etiquette of the Business—a Blow, in fact, at those engaged in its affairs and likely to lessen the mystery and importance of its votaries. It is needless to say this is not now true and never was true, except in so far as it affected men busied in building themselves up at the expense of those they worked for.

The conduct of railway affairs is of such vast scope and importance that many engaged in it are surrounded with all the glamor of public office, without the disagreeable features which attend the latter.

Nothing has been more noticeable in the operations of railroads in the United States than the unconcern displayed by business men in regard to the warfare made upon such properties through legislative enactments and otherwise. Enforced reductions of rates and harassing regulations have been the rule from time to time, followed by commercial disturbances, disastrous both to railroad property and general trade. But what has impressed the observer most has been the failure of the community to discern the intimate connection between railroads and other business enterprises; that one cannot be crippled without corresponding injury elsewhere. This lesson our people are just beginning to learn.*

* This important and interesting phase of the railway problem I find frequent occasion to refer to. It is, however, more fully discussed in the book "Economic Theory of Rates."

One of the misfortunes attending the exercise of arbitrary power is that it too often makes men impatient of control or advice; renders them indisposed to act with others; makes them suspicious of those about them who possess, even in a remote degree, any interest or accomplishment in common with them. Wise distribution of power will obviate this great evil wherever it exists.

Men who feel that they are, within themselves, able to cope with every circumstance, are apt to become arbitrary, suspicious and tyrannical; to cease to grow and, in ceasing to grow, begin to shrink. It is said that wise men learn of fools. The reverse of the proposition is not true. The placidity, elasticity and vigor of the wise man's mind keep him always young. He is not unduly elated, but inclines to suggestion and advice, without reference to its source or association. All men are alike to him.

Whenever those who manage the affairs of corporations cease to learn, cease to grow mentally, they should be laid on the shelf where they may grow old in mechanical cogitation and, if inclined to be critical of the men about them, will do no harm. A moderate pension should be allowed if they have worn out in the service.

The exercise of an alert and intelligent judgment is especially necessary to the efficient and economical operation of great corporations—to know what to do and to do it at the right time. This requires vigorous action and ruggedness of character on the part of officials.

In the management of railroads everyone is responsible for what he does. Everyone is accountable. This builds up in all a desire to acquit themselves with honor. But this responsibility requires that the acts of everyone should be known. Without this the merit of a good action would pass unnoticed and the demerit that should attach to a bad one would not always follow.

Nothing is more apparent to an observer than the courage that is frequently required of those who manage railways; the manliness to do what ought to be done; the disposition to look to results, to consider the property as a whole and in perpetuity rather than the creature of an hour.

Railways, not less than other property, belong absolutely to the owner to do with as he pleases, subject, however, to his duty as a common carrier and the fact that the property is inextricably interwoven with the political and commercial interests of the country. While he may operate in his own interest, he must always recognize that ownership is, in a measure, a thing of perpetuity, a never ending trust; that the property cannot be permanently injured to secure a temporary object. This requires continuity and integrity of purpose. These railroad owners and managers generally have.

The profound and laborious duties of the executive officers of railroads are not generally understood; they are called upon hourly to decide wisely and quickly things of the greatest importance, for which there is, in many cases, no

precedent; to weigh nicely the relations that exist between the owner, the public and the employe, and to so act as to harmonize the interest of each.

The duties of railway officers vary according to position, but involve grave responsibilities in every case. Some have to do with questions of traffic; others with the manipulation of trains; others with the maintenance of property; others, again, with the additions and improvements it requires; others with questions of management, policy, internal administration and so on. Each department has its specific duties, which require an alert, experienced and faithful representative.

Sound judgment and honesty of action are essential above everything else in the management of railroads. The manager who hesitates to spend ninety cents when he may earn a dollar thereby, without establishing an unsafe precedent, is neither a wise nor a safe representative, however he may be momentarily applauded for his economy. It does not matter that he may be reprimanded for his action by owners. He must always be strong enough to be honest.

One of the most important features connected with the operation of railroads, is the making of due provision in advance for filling vacancies; the arrangement of the service so that, without expense, each man shall have a duplicate who can take his place at a moment's notice and carry on his duties, if not as well as he, yet with

as little embarrassment as possible. This precaution is of great service to a company in many ways. Its value is not confined to any particular department, but is found necessary at headquarters, at stations, water sheds, along the track and in the train service. It embarrasses no one if properly regulated, while it protects the owner and manager against contingencies sure sooner or later to arise. It is based on sound business principles, as much so as the making of provision for the substitution of one engine for another in cases of accident.

It is said of a great Roman general, who triumphed four times and was five times dictator, that his success was due to the wise disposition he made of authority among subordinates. He trusted, honored and rewarded them. Those who manage railroads successfully must enforce the politic rule of the Roman general; must remember that great results are only to be achieved by exciting the interest and enthusiasm of men; that this can only be reached by stimulating and rewarding their ambition.

Those who manage, whether the field be great or small, must be impersonal in their actions; must impress those with whom they serve that they are more concerned in doing right, more anxious to build up the service, than to have their own way. Only thus can a service be made intense with life and interest.

An evidence of worth in men is their ability to discriminate between economical thrift and

niggardly parsimony; to preserve the medium line in everything; to withhold rewards in excess of service rendered, and yet to make such award as the good of the service requires.

Men will work for small wages with unflagging zeal, if they believe they will be treated justly; if care is exercised to make them feel so. A strike, it may be said, is an impossibility in the case of a corporation that has exercised this tact *from the start.* Such disturbances are always the outgrowth of oversight or neglect; generally of a stupid disregard of the fact that corporations cannot be governed as groceries are, where the owner hourly pries into his business, personally looks after his clerks, personally rewards them.*

Properties are sometimes bankrupted by sacrificing future results to present ends. Such occurrences are by no means frequent, however. As a rule, men who act for others spend too much money rather than too little. But there are exceptions. Properties are sometimes starved, if the expression may be used. Necessary additions, improvements and renewals are put off without sufficient reason. But such cases are exceptions, and as such unimportant.

The wisdom of a manager (and when I say manager I mean everyone engaged in managing)

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*I perhaps state the case too broadly. There are exceptions. It is possible that men who are every way contented may, through their sympathies, be induced to join those employed in neighboring industries in a strike—may be stampeded, in fact. I have known of such cases.

is manifested by knowing when to increase or decrease the service; when to make it plentiful and sumptuous; when to cut it down, when to reduce the accommodation and benefits conferred.

It is the nature of men when they give birth to an idea to view it complacently; to feel that it is perfect. This spirit is evinced in many ways in corporate life. Thus, the manager of a steamboat line will put on a given number of boats to accommodate its business. Afterward, if you tell him the accommodation is insufficient because of increased business, instead of listening patiently, he will very likely recount to you what he has done. Persistence upon your part will only serve to increase his amazement and irritation at your presumption. The trouble is not that he is lacking in good intention, but that he lives too much in the past. What should we say of a grocer who would not continue to increase the length of his counter, so long as he found profitable customers to occupy the increased length? Yet such instances are not infrequent in the business world. Not because men are stubborn, but because they lack progressiveness; lack the instinct of thrift.

No man can determine in advance what accommodation a traffic requires. There is no rule to follow except to keep on adding to it so long as profitable business is secured thereby. And herein lies the true method of building up the business of carriers. It is neither a great nor a

subtle secret, but its comprehension requires an attentive and alert understanding.

The wisdom and fidelity of a railway manager are noticeable in many ways, but above all in the expenditures he authorizes; he knows when and how to make repairs; when he can best spare his rolling stock to haul material; when a building can be erected at the lowest cost and with the greatest good; when the least outlay will put his track in order; when new sidings, buildings, platforms and yards should be provided, and to what extent; where light, inferior or cheap material can be used to the best advantage and where the heaviest and best is required; what kind of cars and locomotives are most available and the number needed; the most convenient location for shops; the best arrangement of shop forces; what kind of rails should be used upon particular lines, and the kind of ties and track fastenings needed, and so on throughout the service. All these things will not, indeed, originate in his mind. They will represent the experience and observation of those connected with the different departments and branches of the service. The wisdom of a management is evinced in the cognizance it takes of these storehouses of information and in the skill it displays in using them.

The efficiency of corporations is, in the long run, dependent upon their being so organized as to wisely distribute authority and responsibility. Every officer must be clothed with the authority he requires in the discharge of his duties and

must be respected therein, so that he may be held accountable for his acts. In the hurry and confusion that have attended the building up of corporations, details of this nature have not always received attention. We have been sometimes too intent upon essentials. Particulars of organization will hereafter receive more and more attention. But there will always be differences of opinion as to methods; these differences, however, will promote rather than retard the object, as they will excite study and renewed exertion.

One of the most curious things about railroads is the wide divergence of method that exists. This does not spring from conflict of interest, but from differences in character, training and environment. The early organization of a corporation has always much to do with shaping its future methods and moulding the character of those connected with it. Men cannot escape from their environment. It is, therefore, of vital importance to a corporation that it should be organized properly at the start. If organized improperly, its servants will cling pertinaciously to its practices, first because they do not know any better, and second because they do not know what a change will have in store for them. Those who work for corporations have all the conservatism of capitalists, coupled with their timidity; they bear the evils they have rather than fly to others they know not of.

Imperfect training in early life renders men afterward difficult to direct wisely; makes them impatient of opposition or suggestion; makes them indisposed to learn. In every effort to reform abuses especial attention is directed, because of this, to the young and aspiring; to those whose minds are still receptive; to those who have not yet settled down to a belief in their own infallibility. It should be so with corporations.

A curious thing in the operation of corporations is the noticeable and lasting effect on their organization occasioned by the peculiar bent or talent of the chief executive. Thus a president who reaches that position from the legal department will devote much more than a proportionate amount of his time to the legal business of his company; those who reach it from the department of engineering are especially concerned in additions, improvements and renewals; those who reach it from the operating department find especial pleasure in the movement of trains and in the physical management of the property; those from the traffic department take up the duties of that branch of the service with peculiar satisfaction. These comprise, practically, the avenues of promotion to the presidency. Diversity of experience and talent upon the part of executives occasion startling differences in internal methods. But these differences are, on the whole, beneficial. The executive who looks much after the legal department of the service must necessarily allow those in charge of other depart-

ments great discretion in the conduct of their business. This abstinence serves to stimulate the zeal of the officials concerned. The result is multiplied interest and great and permanent advantages. The executive who assumes to know everything knows nothing well and oftentimes hinders rather than advances.

The affairs of a railroad are so great and so immeasurably beyond the comprehension or experience of a particular man that approximate perfection can only be reached when a large discretion is permitted department officers; when the widest possible interest, experience and intelligence is brought to bear on the subject. A railroad cannot possibly be in worse hands than under the domination of a man who disregards this principle. He will cripple its forces and otherwise retard its progress, simply because he cannot be ubiquitous. In order to build up Men in offices of trust, they must be allowed necessary authority; must be trusted; such reasonable and proper power as they require to enable them to act and to make them responsible for what they do, must be freely accorded them. Thus, the master mechanic of a road must, within certain limits, be respected absolutely; he cannot be dominated in the technicalities of his office by men less experienced and skillful; nor can the manager of trains be made the puppet of men bound up wholly in the maintenance of track, or *vice versa*. A happy mean must everywhere be observed.

Every department of a railroad has, to a certain extent, divergent interests. Thus, the master mechanic would have only heavy engines; on the other hand, the trackmen would have only light engines; the trainmaster would decide from the standpoint of his schedule. Each will look after the interest that most concerns him. Thus the service is permeated by conflicting interests—by a desire upon the part of everyone to make a good showing. This desire is, however, modified by the concern all feel in the general prosperity of the property; in its best good. It is also held in check by the general management. The latter considers every question from the standpoint of the common good. These divergent, yet harmonious, interests and aims constitute the *esprit de corps* of an organization and serve, if wisely governed, to enlist in its behalf the best efforts of which men are capable.

The operating force of corporations will vary according to its constituent parts and the environment of properties. But in every case authority must be so apportioned as to enable each person to control the things necessary to his efficient service; necessary to enable him to act intelligently and connectedly.

The etiquette so noticeable among government officials, especially those connected with the army and navy, should be equally potent in railway and other corporate life. The good of the service requires that everyone should defer to the authority of his superior officer and refrain

from meddling unadvisedly in the affairs of others. The latter is especially important. Intermeddling might, indeed, not do any harm in particular cases, but its general effect is to excite jealousies and suspicions and lessen responsibility. The rule in corporate service should be the same as in the army; each person should have his allotted field of work and should be respected therein.

A means of securing continued and efficient service, of spurring men to action, is to study their acts in detail so as to be able to reward the faithful and punish the derelict. In the case of corporations this can only be done in the higher branches of the service through the medium of returns. A management may indeed judge in a general way of the worth of officials from what it hears and sees, but in order to determine particularly the measure of their worth it is necessary to study their work in detail and by comparisons. This involves systematic accounts and careful returns of receipts and expenditures. In traffic matters it is to be found in a subdivision of the business; in the operating department in minute and accurate classification of expenses and construction outlays, as a whole and in detail, for particular divisions, lines and objects. Thus, track expenditures for labor must be carefully classified according to lines and roadmasters, so as to compare the work of one with another. The same rule must be observed with the expenses of locomotives and trains; in each case the outlay

must be known. And, ascending a step higher in the scale of management, the operating expenses as a whole must be apportioned between various divisions to determine the relative economy exercised by superintendents and others. None of these subdivisions will be entirely accurate; perfect accuracy in such accounts would cost too much; but they will be sufficiently so to stimulate the zeal of those in charge and afford owners and managers a clue at least to the merit of particular men and things and the relative value of different parts of the property.

Generally speaking, railway men find it to their interest to devote their attention to the particular department of the service in which they are engaged. It is thus great skill is attained, thus experts are created. To attempt to keep themselves advised of affairs as a whole, would distract their attention and lessen their practical value. No one can ever hope to be able to comprehend fully all the details of a railroad. The most that anyone can expect is to have such general knowledge as to enable him to pass judgment on particular things after hearing the evidence of experts, *pro* and *con*. This is the duty of a judge. It is the function of every railway official. But subordinate officers have practical duties to perform aside from it.

The economical operation of corporations requires that, so far as practicable, the duties of the many should be simplified and the number of those who perform merely supervisory work

be restricted. The number of supervisors should be made as small as may be consistent with a thorough and connected oversight of the property. The two classes of labor are essential, but they should not be confounded with, nor be allowed to trench upon, each other. The high priced laborer should not be encouraged to busy himself with duties that can be performed as well or better by labor of a cheaper grade. The reverse of the proposition is equally true.*

While economy of management requires that the number of those who plan and direct should be restricted as much as practicable, there is a point where this policy, if unwisely exercised, will operate to the permanent disadvantage of a property. That point is reached when a company fails to make adequate provision for filling its offices while the incumbents are still in the exercise of their duties. Everyone, no matter what his rank, must have a substitute. This substitute or vice-agent must be qualified to perform, as nearly as the circumstances of the case will permit, all the duties of the principal, and should have, in addition, elements of physical health that may perhaps be wanting in the chief.

* I remember to have been greatly impressed with the truthfulness of this many years ago by seeing the superintendent of a railroad busy with shovel and pick-axe repairing a track washed away, while great brawny laborers stood idly by looking on and commenting pleasantly upon his energy, breadth of shoulder, well set head, activity, etc. The superintendent was particularly esteemed by his employers, but his energy in this case was misplaced.

The substitute must be selected with a view to his future usefulness quite as much as to his present worth. This necessitates peculiar qualifications. That he must be of tractable and loyal disposition goes without saying.

A narrow conception of duty, born of incapacity or cowardice, may lead to the employment of unfit men as substitutes, men of straw, with just enough capacity to keep out others with greater talent and brighter prospects. This disposition is uncommon, but its exercise should never be permitted.* A substitute should be every way fitted to perform the duties of the principal when the office of the latter becomes vacant, temporarily or permanently. Meanwhile he should be the confidant of his chief, the receptacle of his views in reference to the property and its present and prospective policy.

A service thus organized, it is possible, may temporarily cost more than one organized without reference to the future. The ultimate effect, however, will be favorable. While it may be necessary, in fixing the salary of the substitute, to remember the office he is expected to fill, still his knowledge and usefulness will well repay the

* I remember having my attention called to a confirmed paralytic, who had, while in that condition, been appointed to the office of assistant to a corporate officer. The office filled by the invalid was one requiring great energy, clearness of perception and considerable activity, besides continuity of service. The real office he filled, however, was that of the canny spook in the nursery book, which the crafty old man kept to frighten inquisitive and naughty children off his preserves.

expenditure. Under such an organization the policy of corporations may be made far-seeing in scope and continuous in application; under any other it will be fragmentary in its purpose and temporary in its conclusions.

Those unfamiliar with the practical operation of railroads cannot estimate the mishaps and losses that occur through the introduction into a service of new and inexperienced officers;* of men unacquainted with the details of the duties they are to perform; of men unacquainted with the manner in which the duties have been performed in the past, or the policy of their predecessors. The result is always the same, always unfortunate. Under the most favorable circumstances the incumbent is in the position of a man called upon to act without possessing the practical knowledge necessary to enable him to do so intelligently; he has everything to learn, from the arrangement of his files and the furniture of his office, to the unrecorded policy that governs his duties; he has to learn the geography of the line and its connections and competitors, its peculiarities, traditions and prospects; what it possesses and what it does not possess; its contracts, agreements and leases. He has to become acquainted with his associates; must win their regard; must placate the unfriendly, disarm the suspicion of the jealously inclined and warm into

*No one ever knows what these losses amount to for the reason that it is to the interest of the person precipitating them to conceal the facts.

active co-operation the indifferent. He must also ingratiate himself into the favor of the public and acquire its hearty good-will. The labor is herculean. It requires months and years of patient study and methodical work; work that cannot be described and that cannot be estimated by those unfamiliar with the duties of a railway officer in the highest sense. The actual loss to a company that the introduction of a new manager engenders cannot be computed. It will depend somewhat on his industry, experience, ability and tact, and the extent and character of the property. The loss will be increased should he make radical changes among subordinates, as he is very likely to do. Upon such a line as the Pennsylvania, it is probable that the loss a change of management would occasion (if provision had not been made in advance to systematically educate the new man) would amount to millions of dollars. Changes in subordinate officials involve a proportionate sum. But what is marvellous in connection with such changes, is the fact that the new incumbent will be able to convince the owners of the property that his employment has resulted in a saving. He believes this to be true. He is not able, from his partial knowledge, to estimate the loss he entails. These facts do not prove that railway officers should not be changed when occasion requires, but they do prove that the utmost care and circumspection should be exercised; that it should be the aim of every company to so organize its affairs

as to render such removals unnecessary, and, when necessary, to minimize the harm they occasion by the presence of a person trained to fill the vacant place. This precaution, it may be said, is fairly well observed by railroads, and its practice grows stronger with each succeeding year.

CHAPTER V.

MUTUAL RELATIONS OF EMPLOYER AND EMPLOYE—VALUE OF UNINTERRUPTED SERVICE, INTEREST AND EXPERIENCE—PRINCIPLES OF ORGANIZATION.

A great number of men is employed by every railroad. The organization of these corporations is vast and intricate. Acquaintanceship therewith requires careful and prolonged study. Because of this it is desirable that those who fill positions of responsibility, from the manager down to the section boss, should remain uninterruptedly in the service. Not only this, but their loyalty to the interests of the property must approximate in earnestness and intelligence that of the proprietor himself. Without continuity of service and integrity of purpose, an enterprise can never hope to reach the highest point of productiveness of which it is capable. If any considerable number of its servants is indifferent to its success, or is controlled by purely selfish motives, their lack of zeal will neutralize the efforts of others, and will result in heightened expense and lessened business.

Corporations are the puppets of their servants, not qualifiedly but absolutely, except in the case of limited properties worked under the immediate eye of the proprietor; they make and unmake

values. If discreet and faithful, the property progresses under their guidance. If they are unfaithful, or lacking in ability, it shrinks. This shrinkage may go on for a long time, to the surprise and amazement of proprietors who see the effect, but do not know the cause.

The owners of corporate property look immediately to their officers. These they treat with courteous consideration. On their part the officers, as the immediate representatives of the owners, are equally regardful of those below them. They seize every opportunity to express the value of their services and to reward them. Anything likely to demoralize a force, or cause individual members of it to have a mean opinion of the office they hold, is carefully avoided. Vacancies are no longer filled haphazard, but by promotion after due consideration. Wherever this rule is practiced each day adds to the cohesiveness and efficiency of the service.

The illusions of life are quite as potential as realities. This is illustrated in many ways in the railway world. Thus the practice of giving passes to railway men is based largely upon the good effect it has upon the minds of the recipients of such favors, it being more beneficial to the employers than an increase of pay of equal amount. Except for this, railway companies would not generally extend the free use of their lines to the servants of other companies. The concession is a valuable one and one worthy of wise and humane ownership.

The owners and managers of railways seek in every way to foster in the minds of employes a feeling of regard for the property. Without this co-operative interest, their efforts would be of little avail. They strive in every way to encourage and cement relations of common regard, and in doing so seize every opportunity to promote the interests of the employe. In this way the latter's ambition and zeal are intensified.

Capacity to manage denotes the possession of good judgment; ability to discriminate wisely; a discerning mind; thoughtfulness in doing many things that the merely superficial esteem unnecessary. Thus a wise manager finds it desirable on many occasions to especially reward old and faithful subordinates without assigning to them new or added duties. Such recognition, while unimportant in amount, stimulates the recipient and heightens the interest of others. In such ways men are attached to a property and there is built up in them an interest in its success not attainable in any less practical way.

The length of time an employe has served and the fidelity that has characterized his service, influence, and very properly, his pay. The veteran conductor, for instance, expects, and receives, higher wages than his junior in the service, who perhaps has charge of a train of equal importance. Such distinctions are natural in commercial life and serve to build up and sustain men. Any method of government that does not recognize them is defective and weak.

The junior in the service of a railway instinctively defers to his elder, even when conscious that he excels him in talent and accomplishments. There is a general fitness in this. It is involuntary. It is a recognition that long and faithful service entitles men to preferment. Such distinctions are marked. They may not, indeed, in every case find expression in the wages paid, but they exist nevertheless, and are well understood. In this way innumerable grades are established upon every railroad, each grade having the definiteness of a recognized rule. These grades, the result of priority of service or superior attainment, satisfy measurably the craving of men for advancement and stimulate their ambition. Each sees stretching before him an illimitable perspective, a succession of steps, each succeeding step being higher than the other. He sets out to climb this ladder, the topmost round of which no one has yet grasped or ever will grasp, because it implies the control of the railway system and its complete elucidation.

The distinction that an office confers upon its occupant becomes, each year, more marked in railway life. These distinctions, little appreciated or understood by the public, cast a roseate glow over the service. They give it *eclat* and surround it with a glamour that robs it of its base and mechanical attributes.

To men of ordinary attainments the acquisition of money does not afford the attraction that an office they have not yet reached possesses. The

hope of attaining this office incites them to renewed effort, and thus interests and talents are warmed into life. For this reason it is to the interest of every company to surround its offices with such show of consideration, such glamour of expectancy and desire, as is consistent with economy and effective management. In this way railroads may build up organizations sufficient to protect their interests. The mere wages they pay will never do it unless supplemented by this romantic and chivalrous attachment.

The poverty of American railroad companies has prevented their making any special provision for worn-out employes. Unions and associations have everywhere sprung up to supply this omission, which is felt less in America than elsewhere, because of the sentimental regard our people attach to their personal independence and self-sustaining power. This, coupled with the superstition in railway life that clothes every superior office with undefined powers and prerogatives, and the hope held out to everyone of filling it, leads the employe to disregard matters that more prosaic people esteem important. However, the rapid and vast growth of railway unions and protective associations in America evinces a growing interest in the matter. The subject is one worthy the attention of railway owners and managers.*

*Mr. O. D. Ashley, a conservative man and one having considerable railroad experience, in an article on railway companies and their employes, recommends the adoption of the

following methods to improve the efficiency of the service and bind employes more firmly to their employers: (1). Promotion of employes from the ranks according to ability and meritorious service. (2). A well-constructed system of life and accident insurance and pensions, the funds to be entirely provided by yearly contributions from the earnings of the employer (so that the fund may be under the management of the employer); the benefits accruing to employes from this fund to be based upon length of service. (3). A hospital service. (4). Assistance to employes in locating permanent homes upon the lines of the employer:

CHAPTER VI.

PRINCIPLES THAT GOVERN THE FORCES OF RAILROADS AND THE FIXING OF WAGES.

Local causes largely determine the wages paid by a railroad. They are potential. No particular circumstance applies with equal force to different classes of men, or to different roads. The practices of neighboring companies cut no figure. This will always be the case so long as railroads are operated upon business principles.

The widest differences exist between railroads, founded on natural causes. Thus, upon lines located in sections of country that offer great natural obstacles to the construction and operation of railroads the engineering department occupies a position of influence wanting with companies more favorably located; upon one line we will find the superintendent of bridges receives a high rate of wages, while upon a neighboring line, where the duties are less arduous, the office is held to be of comparatively little consequence. Upon a heavily worked line, with but one track, the train manager will be held in high esteem, while upon a line possessing two or more tracks, where facilities are ample, the position will be normal and the pay corresponding. Upon a highly competitive line where the traffic

is surrounded with difficulties, the manager is an officer of exceptional experience and ability and will be clothed with especial consideration and power, while upon lines happily more free from the rivalries of trade the position will not be different from that of other departments of the service. And so if we should go on making comparisons we should find that the compensation officials receive and the power they exercise are never the same upon any two lines. Or, if we should find two companies exactly alike, the difference in the character and capacity of men would find expression and punctuation in the wages they receive and the power they exercise.

As a rule the pay roll of a company affords evidence of the esteem in which officers and employes are held. It evinces generally their fitness and the importance of their work. The rule applies to assistants and subordinates as well as officers, but not in so marked a degree.

The nature of the surroundings, the cost of living and the supply of labor, affect the wages railroads pay, but not, it is probable, to the extent they do in other fields of industry.

An important element in fixing the compensation of those who work for railways is the prospect of permanent employment and certainty of pay. The mechanic, assured of continuous work and relieved of anxiety as to the financial ability of the employer, gladly accepts less for his services than his brother who is compelled, from time to time, to remain idle while awaiting

work. The railway clerk, realizing the stable nature of his position, does not esteem it a hardship that he is compelled to work for less than private firms pay for the same quality of labor. The tenure of the latter does not, in the majority of cases, extend beyond a few years, while that of the railway company is as permanent as anything can be. What is true of the mechanic and accountant is equally true of other kinds of labor.

The exceptionally favorable circumstances that surround the service of railways in this respect enables them to hire for less than others not possessing these advantages. But few corporations could operate at a profit, or at all, if compelled to pay the wages of private firms.

The definiteness of service that every company holds out to those who are capable and faithful is of inestimable pecuniary value to it. Properties may pass into the hands of new owners and directors; superintendents and managers may come and go; the entire corps of officers may change without jeopardizing the position of subordinates further than to occasion them anxiety. But their anxiety, like most of our anxieties, will have no substantial basis. It is that felt by mankind the world over when brought face to face with the unknown; it disturbs and alarms. On this account it should, so far as possible, be avoided. In order to get the maximum service out of men of which they are capable, they must have peace of mind, they must be free from

harassing anxieties; their assurance of continued employment must be real and tangible.

The tenure of office for those who work for railways is generally understood to be permanent, so long as men are capable and trustworthy. The rule is not always regarded, but is in the main. The tacit understanding that exists between every company and its employes—that fixedness of service is a part of the consideration—is honorably observed. Managers change, and with them the policies to which they give birth, but the passive agent, who, in their hands, has blindly followed orders, is not questioned or disturbed.

The service of corporations is progressive. The office boy or junior clerk of to-day, working for nominal wages, is the future manager. Each year of service binds him more securely to his business. The man who enters the service of a railway company is wedded to a calling he cannot abandon. With the lapse of time and the growth of habit his inclinations and interests will alike prevent his severing the connection. The associations of the office and the glamour that envelops the future, quite as much as the modest pay he receives, make any suggestion of change repugnant to him.

The wages paid by railroads for common labor, such as work with the spade and pick-axe, are governed by the general commercial price. With the completion of necessary repairs and renewals each year a large part of the force is

discharged, only enough men being retained to perform the nominal work of keeping the property in order. The same course is followed with laborers at the shops, or engaged in handling traffic. Operatives of this character being readily found when occasion calls for their employment are not retained longer than their immediate services are required. Any falling off in the traffic of a company is instantly followed either by a reduction in the force or the number of hours of work, or by both, except at points where the minimum number of employes only is engaged. The element of fixedness of service, so noticeable in every other department of railway service, is wanting in connection with common labor, and to the extent that this is so a company is not able to effect here the relative saving it does elsewhere. Aside from this a railway is less affected by the surrounding price of labor than any other great employer, except the government.

An important element in determining wages is that of danger; men occupying hazardous positions are compensated therefor; thus switchmen and trainmen are paid higher wages than laborers of corresponding grade elsewhere on account of the danger that attends their work. Because of this railroads hail with pleasure every appliance that lessens the risk of operating their properties. Every such improvement possesses to them a positive monetary value. They have therefore always present a selfish reason (aside

from their kindly interest) for surrounding their service with every reasonable safeguard. To the operation of these contrary but harmonious influences may be safely left the question of the adoption or rejection of particular safety appliances.

Skill affects the wages paid, but not to the extent it would if the tenure were less definite.

The special and extended knowledge of affairs which officers bring to the discharge of their duties is more perceptible in the salaries they receive than it is in the case of employes of a lower grade. The great number of the latter occupying corresponding positions influences the rate of compensation. A scale is fixed for each grade, and those in one grade cannot, as a rule, hope to receive higher wages than others occupying corresponding positions. But as promotions are of frequent occurrence this want of elasticity is found not to occasion dissatisfaction or work especial hardships. Those who possess capacity find opportunities for advancement; those who lack capacity are generally content with the simple and irresponsible nature of the work they perform, and the certainty afforded them of its continuance during good behavior.

The responsibilities attending an office also influence the wages paid.

Generally speaking, the same influences that operate in other branches of life affect relatively the wages paid by railways. They are based on the value of the work performed. This is as it should be.

The wages paid by corporations in America are higher than in Europe. But this disparity, it is probable, will grow less marked with time.

In reference to the fitness and training of those who work for railways, they are probably equal to those of any other industry; they are, however, undergoing a marked change for the better each day.

Railways in the first forty years of their experience were dominated almost wholly by self-made men; by men not systematically educated or mentally trained, who lacked knowledge of methods pursued in other vocations of life. They knew very little of the ways of bankers, merchants and traders. For many years it was not generally known that the same influences operated with railroads that were observable in connection with other affairs. Peculiar fitness and years of discipline and experience that men brought to the discharge of business in other walks of life were not thought at first to be needed upon railroads. Anyone was believed to be good enough. Few of the companies made any provision for educating their officers or otherwise systematized their service. Their managers were picked up here and there, very much as an impressario gathers a company of opera singers, without, however, taking the precautions he observes. The result was that unfit officers were oftentimes selected. When their deficiencies became so marked as to compel notice they were discharged and others in turn hired to take their places.

Circumstances attending the employment of labor even upon parallel lines are never the same. A fortunate circumstance will enable one company to hire at the minimum rate, while another company will have to pay the maximum rate.

Labor feels quickly and sensibly the impulse of competition. Where competition is active, there prices will be most advantageous to the employer; where it is slight, they will be advantageous to the laborer.

Dissimilarity in wages, as already pointed out, exists in the extremest limit in localities but a few miles apart. The railway employe who lives in the country, where rents are cheap, where he can educate his family cheaply, where he may have a garden, can afford to work for less than one who does not enjoy similar advantages.

In practical life those who are compelled to pay a high price for food, fuel, servants, and other household expenses, will demand and receive a higher rate of wages than those whose outlay is not so great. Here, as everywhere else, cost influences the price.

The healthfulness of a country materially affects the rate of wages. A corporation operating in a district infected with malarial and other diseases, does not, and cannot, hire as cheaply as a company operating in a more favorable locality.

The wages paid the same class of operatives by a company working two or more lines are not uniform. The wages paid on each line are influenced by local causes beyond the control alike of

employer and employe. Whatever these causes may be, they ought not to be ignored.

Railways cannot fill their offices with men of mediocre attainments if they expect to reach the acme of prosperity. A property thus governed lacks elasticity, lacks enterprise. Its policy is poor and its methods slothful and dilatory. It cannot succeed in competition with an enterprise more wisely administered.

Men of poor attainments are content with wages commensurate with their abilities; but the value put upon such services will in every case exceed their worth. We see the truth of this illustrated in many ways in practical life.

The law of supply and demand should apply not less to railway operatives than to other classes of men. As a rule the price paid should be governed by the quality. Any reduction below that fixed by common usage, based on the necessities of life and the value of service rendered, is followed by a falling off in the quality of the service.

The losses a railway company will suffer from the payment of inadequate wages greatly outweigh petty savings. These losses will multiply themselves according to the opportunity of those aggrieved, and we do not need to itemize them to enable us to approximate their extent or fatal effect. They will appear in the first cost to a company of material; in its waste; in the time that is idled away; in the employment of too many men; in traffic diverted or undeveloped; in neglect to care for and preserve the property.

In any attempt to determine the relative cost of labor, we must first ascertain its quality, its capability, industry and integrity. A simple comparison of wages proves nothing, save, perhaps, the short-sightedness of a management. While a company's pay roll may superficially exhibit careful economy compared with other companies, still its wages may be very high, taking relative capacity and integrity as the standard.

What has been said in reference to the necessity and value of paying adequate wages does not apply to companies unable, for any reason, to make fitting return. Men everywhere have an inherent appreciation of the equities of life, and acquiesce cheerfully and heartily in its necessary and inevitable hardships. Because of this the corporation that is, for any reason, unable to pay what it should is served as generously and faithfully as its more prosperous neighbors.

The wages paid by railways fluctuate constantly and widely. They never remain the same for any great length of time. They rise and fall like all other values. They are low in times of depression and grow with increase of business. Any attempt to arbitrarily determine what they shall be, whether by legislative interference, through combinations of workmen, or otherwise, no matter how successful temporarily, results disastrously in the end; in so far as they are in excess of an equitable apportionment, the employer will suffer, and through him the

community. To the extent they are unjust, the hardship will sooner or later, however, react on those who precipitate it. Trade is self-adjustive. It punishes without mercy those who transgress its laws. No one ever traced the history of arbitrary interference with the vested rights of commerce without being struck with the retributive justice that sooner or later overtakes its transgressors. Punishment is both moral and physical. It is that which follows a disregard of natural laws, and is, therefore, without variance or mercy.

CHAPTER VII.

PRINCIPLES GOVERNING THE ORGANIZATION OF THE FORCES OF CORPORATIONS.

While those who build railroads are able to foresee the future, to discern where money may be wisely invested, the value of their property after its completion and its usefulness to the public will depend largely on the trustworthiness of those who operate it. Only negative results can be expected if they are lacking in capacity, experience or fidelity.

It has happened in the history of railroads that a property, admirably located and promising abundant return, has been weakened and its profitableness destroyed by those in charge. This will be the case when a management is not loyal; when it speculates in the trust confided to it; when it is not honest.

Those who work for railroads must not only be faithful, but they must be able and experienced; must know what is best. Herein lies the value of our railway associations. They help, however slightly, to educate the better class of men who belong to them, or who follow their proceedings. They aid men in extricating themselves from the rut of provincialism in which they are imbedded; help them to regard affairs from a wider standpoint.

Everything is good or bad relatively. That is to say, a thing is good or it is bad, as it compares favorably or unfavorably with some other thing. This is so with railway labor and with railway disbursements generally.

The expenses of a company are large or small as compared with those of a corresponding period a year ago, or five years ago, or as compared with some other road. We cannot judge intelligently without the aid of such comparisons. They afford a guide, although a variable one, by which to estimate the capacity of managers and the value of properties. But in making these comparisons we must not mistake their significance. If, for instance, we discover that the net income of a property is less than it was a year ago, we must trace it to its real cause, must ascertain whether it is due to enhanced prices, to increased repairs and renewals, to a falling off in business, a reduction in rates, extravagance, incapacity, or what.

Increase in operating expenses may be quite as much an evidence of wisdom upon the part of managers as a decrease is of economy. It must also be borne in mind that the relation of cost of operating to earning rests as much with traffic managers as with superintendents, although the latter officers are held generally responsible for such matters.

The relation of cost of operating to earnings is dependent both upon what is received for doing business and the disbursements that attend it. This unity of interest seems not to be understood

by many, and by others is studiously ignored or its relevancy discredited. A traffic manager may so reduce rates as to leave nothing whatever to divide among owners. Many practical illustrations of this might be given, if necessary. The advantages that the best located roads possess may be so frittered away by injudicious concessions that such roads will barely pay the cost of working. Such results are, however, rarely attributable to a single man ; they cover long periods of time and many men, and grow out of many causes : competition, over-construction, want of experience upon the part of managers, lack of reliability, jealousies, unfitness, love of arbitrary power, employment of irresponsible agents, belief of men in their superior capacity and shrewdness, inability of managers to work with others or harmonize conflicting interests.

Generally speaking, the organization of railroads should be impersonal ; should not depend too much upon the life and health of particular men. The lifetime of the strongest man is but a span compared with the life of the property he represents. As a rule, abundant provision is made upon every railroad for the common vicissitudes of life. But formerly there was no division of knowledge or authority upon railroads. It was absorbed wholly by some particular man. His lieutenants were men in buckram ; the stalwart sentinels we saw standing upon the ramparts were really only men in form, figures in wood, automatons, so to speak, designed to keep up the

illusion of a well-guarded fort that meddlesome intruders might be frightened away and the disquietude of owners allayed. In the early history of railroads, properties were so organized that the value of their securities (unknown to owners) depended to an alarming extent upon the lives of particular men. No provision was made for the death or removal of those who had absorbed all knowledge and power. In other instances again, properties were treated as perquisites of managers, to reward favorites and crush those who refused to make personal subserviency a condition of office. Upon such roads men were unknown; only sycophants and time servers could live.

However, organizations such as these were not frequent or important. They were the exception. But wherever personal government found lodgment they cropped out. They represented a feature of railway management which it is not necessary to elaborate here. But this much may be said of it, that the evil, like all evils, carried with it its own cure. It was applied by the owner. No irregularity long escapes his searching vision or acute judgment. If a management is arbitrary, inefficient or untrustworthy, he will discover and correct it, because it is his interest to do so.

The extent of a railway company's property has a material influence upon the cost of operating. An extended property has important advantages, if efficiently organized, over one more contracted. But if not efficiently organized, it

is operated at a great disadvantage. A great property requires a less number of engines and cars relatively than a smaller one, because they are susceptible of more continuous employment. Moreover, the widely diversified traffic of a great property does not seek accommodation at the same time, so that the equipment may be transferred from place to place as the exigencies of business require. Thus greater results can be achieved at less outlay than upon a line not so fortunately situated. Where a property is contracted, the relative cost of operating is much greater unless its business is uniform in volume.

Aside from the ascertainable savings effected by concentration of interest under one management, a great company is able to exercise an influence over its contemporaries in the interest of harmony not possible under other circumstances; its influence enables it to secure advantages not within the scope of enterprises of less magnitude.

It was at one time thought to be practically impossible to manage a great railway effectively. This was true formerly. It is true now where organization commensurate with the property is not effected. It will continue to be true hereafter wherever individual responsibility is not provided for and co-operative effort maintained.

The same difficulty that is experienced in guarding an extended frontier, or military line, in time of war, is experienced in watching the interests of a long line of railroad. While the attention of

the management is occupied in strengthening some weak point in the system, dangers more or less serious threaten it elsewhere. To guard against this it must be protected at every point by men disciplined and fitted to govern.

The extent of territory to be watched is so great upon a railroad that it is impossible for the central management to keep itself advised, except generally, of what is needed at remote points; an arrangement perfected and set in motion to-day will need revision to-morrow or the day following, but in the multiplicity of affairs the exigency will pass unnoticed if proper provision is not made to have it looked after on the spot by local officials. A great railroad cannot long exist as an entity that does not provide for a suitable division of authority and responsibility. It may last for many years, but its ultimate downfall is sure. Why? Because only those clothed with the responsibility of management can appreciate the significance of its affairs, or can be induced to assume the responsibility of acting for it.

No one, except the manager of a railroad, can estimate the injury a property suffers from neglect to clothe its officials with necessary authority and discretion. In no other way can needed changes be made promptly and effectively from time to time. Wherever the local operating officers of a railroad are deficient in number, experience, talent, or discretion, opportunity will be lost and antique methods of business pursued. On the other hand, if the general

staff is deficient in number and authority, its members will be so overworked as to be practically inaccessible to those who ought to go to them for advice and assistance; so that the probability of their attention being called by subordinates to matters that ought to have their action will grow less and less likely as intercourse becomes more and more difficult. Subordinates will quickly discover, where such a state of affairs exists, that the royal road to preferment does not lie so much in bringing needed matters to the attention of the management as in abstinence and complaisance.

A management, if not extended and diversified, labors under the fatal disadvantage of not being ubiquitous; of not being able to be in several places at once, or think of widely different things at the same time; and, finally, of not being able to solve important and complicated questions without study or thought.

In the early history of railroads their management was personal and autocratic: the superintendent, a man gifted with energy and clearness of perception, moulded the property to his will; it teemed with projects emanating from him and of which he was a part. But as the properties grew, he found himself unable to give his personal attention to everything. This, however, did not daunt or discourage him. Able, ambitious, indefatigable, faithful, he sought to do everything and do it well. He ended by doing nothing. He was the victim of over-ambition; he

saw that by trusting his subordinates he lessened his own importance as the dispenser of details, while if he did not trust them they threw the burden of action and responsibility upon him. This was exactly what he desired. He was suspicious of everyone, and impatient of everything that did not emanate from him. Like all tyrants, he was narrow and arbitrary. His methods and undue assumption lessened the interest and pride of officers and employes in the enterprise, without building up anything to take its place except his own personality.

The remedy for this state of affairs was found in trusting men, and in making their authority and responsibility commensurate with their duty and the necessities of the situation.

Much depends upon the organization and the talent of those in charge of a railroad. Men differ widely as to their ability to animate others. One officer will receive the maximum service of which men are capable. Another will be able to impress only such subordinates as labor in his immediate presence; still another, personally capable and faithful, will be surrounded by incompetent, dull and heavy-witted operatives, who render only an indolent support.* Manifestly only the first named

* One of the clearest headed, best informed and most reliable men, personally, that I ever knew, when put at the head of a department, never succeeded in organizing his own immediate office force; the clerks performed desultory service from day to day as he personally directed at the time; when he was absent they gathered in clusters and discussed the weather or made pretense of business at their desks. The chief was not lacking intelligence and perception, but in executive ability.

has the capacity to manage. He alone possesses the ability essential to the operation of a railroad with its vast interests and multitudinous affairs. But what of the other two—the men who know how to work themselves, but are incapable of getting work out of others? Manifestly they are only fit to fill subordinate positions—to hew wood and draw water. But their own estimate will be far different from this. They will not recognize the incidents we describe. Nor will others in every case. Hence we shall oftentimes find them occupying positions of high responsibility or actively aspiring thereto. They are not unconscious of their failings, but believe them to be offset by compensating advantages. Vain delusion! They are the bane of the business world; the men who render the sagacity of investors fruitless; who tear down the edifices erected by others more gifted; who fritter away opportunities that would, in better hands, be seized and profited by. When such men are placed in charge of a railway, we may trace in advance its future. But however baneful, they are not so fatally destructive as the autocratic manager of earlier days. They are simply stupid; he blighted the men about him, and, in doing so, ultimately blighted the property.

To obtain the highest results at the least cost, a road should be large enough to occupy the maximum attention of the minimum number of officials necessary to such enterprises.

The enormous number of details that press

unceasingly for attention on a railroad is so much beyond the capacity of a single person that much of the work is neglected if the organization lacks comprehensiveness. Work will be carried on without adequate preparation or consultation, or will be allowed to lapse entirely.

Ability to act for others grows with its exercise. The spirit is one to be cultivated. Some one must be trusted. The danger is not in trusting subordinates, but in neglecting to educate them so that they may be trusted; in neglecting to instruct them and build up in them a sense of personal responsibility and loyalty.

In a properly perfected organization every official is a responsible and trusted manager, and men come and go without sensibly disturbing the routine of affairs. Absolute unity must, however, be observed, and unless care is exercised there will be a marked difference between the action of general officers and subordinates. The former look at affairs from an elevated view; scan the property as a whole and see the relation each part bears thereto; they see what is important and what is unimportant; where resources may be used to the best advantage. The subordinate, on the other hand, has an imperfect view at best. The isolated fragment under his charge grows in importance as he ponders over it until in time he attaches to it a distorted value. Hence, if allowed to act independently, he will not, unless carefully drilled, be governed by relative values, but by what, from his restricted point of view, he most

esteems. His dogmatism in carrying out his views will also be conspicuous and unreasoning. These faults are to be guarded against by building up in him a regard for collateral departments and the property as a whole; unless this is done he will not make a safe manager; he will be wasteful and extravagant without knowing it; will not distinguish accurately between what is productive and what is not. Thus he will operate an unproductive piece of property as if it were productive. The deficiency he will not regard because he is not responsible for general results. Such instances might go on for years without being suspected if results were not analyzed. Wastefulness of this kind is, of course, much more likely to escape attention on great properties than on small ones, the productive part carrying unnoticed the unproductive part. And herein lies one of the difficulties of operating a great railroad where the poor parts are worked in common with the good, and their supervision is attached as an appendage to the duties of officials having greater matters in charge. Lean and hungry lines, that might be made to pay a profit if operated more circumspectly, are a source of loss. Such enterprises require to be operated distinctively as poor properties, economy, rigid and pinching, being everywhere enforced. Their necessities suggest the means of accomplishing it; wherever traffic does not warrant a passenger train separately from a freight train, it will not be operated separately; mixed

trains will be run at the minimum speed; light and inexpensive rail will be laid; light ties will be used; equipment will be simple and void of ornamentation; wages will accord with receipts. All these things follow as a matter of course when the necessity for them is known to exist. The evil is not one that is so much a matter of practice as of avoidance; it needs only to be known to be avoided. It is such as follows in the train of inefficient management. It is not general or widespread.

It is the ambition of every railroad manager to see the property entrusted to his care grow until it absorbs every contiguous interest. He also desires to see it maintained at the highest point of efficiency. These ambitions are highly laudable.

The amount expended on a property, over and above the amount necessary to preserve it, will always depend upon its earnings. Outlay will cease at that point where the investment will not earn a fair return. When expenditure extends beyond this point it is not dictated by good business usage. Investors rightly expect a return, either immediately or prospectively, and when money belonging to them is used, either with or without their consent, except upon reasonably well grounded expectation that it will earn a return, injustice is done them. The exception to this rule is where it is necessary to expend money to protect that which has already been invested; such expenditures are recognized and understood.

The intellectual requirements of great offices make giants of those who fill them. This is at once an advantage and a danger. If allowed unrestricted license the incumbent becomes a tyrant, at once oppressive and repressive, but if wisely governed, a force capable of ever increasing good.

The various parts of a railroad, from the highest to the lowest, require to be held in due subordination to each other. Each part must be allotted that which it can attend to properly, and in detail. This last is especially essential. It is the very fibre of business and can no more be neglected than a watchmaker can leave out a wheel of his watch and expect it to keep good time.

The organization of a railroad must be commensurate with its affairs. What is sufficient to-day will not be adequate to-morrow. It requires constant adjustment and re-adjustment.

Generally, it may be said that good management will be enhanced by owners giving their property such attention as it merits; by selecting good officers and employes; by their being drilled in their duties; by their being compelled to act as a unit and, finally, by a careful subdivision of work.

The United States army forms, in many respects, a good model for railway organization. Under it each individual is clothed with certain duties and responsibilities and is held in check by well understood rules and regulations. It is only

in some such way that railways can be given the minute attention they require or that they can secure the permanent intelligence, loyalty and experience their affairs demand. Each year their methods of administration take on more and more this complexion.

CHAPTER VIII.

GOOD GOVERNMENT DEPENDENT UPON EFFICIENT ORGANIZATION.

There are many points of resemblance between the organization of the service of a government and that of a railway. The same spirit animates both. In neither is there any financial risk to the employe. The servants of each act for someone else. They have many things in common; are alike in many things.

The difference between efficiency and inefficiency in corporate service is not occasioned so much by inherent differences in men as by differences of method. If a service is wisely organized and governed, efficiency follows; if not wisely organized and governed, inefficiency follows.

The degree of efficiency a force displays depends absolutely upon the measure of wisdom exercised in forming and governing it.

The magnitude of the force of a great corporation; the momentous interests involved; the activity and circumstance that attend the conduct of its affairs; the ceaseless changes; the strife for power; the intrigue for preferment, all combine to surround its service with a charm quite as fascinating as the struggle for wealth. Yet in the

case of a railroad, so continuous and absorbing are its demands upon the nervous energies of those high in service, so harassing the anxieties, that many are broken down while they should yet be in the vigor of manhood.

The railway service possesses for those connected with it the insidious charm that attaches to political life, without the attendant publicity and gross vilification of the latter.* Its attaches, while striving zealously for the common good, are rarely embarrassed in their official life by any friendships except those of convenience. Weighing, with the precision of courtiers, the probabilities of this or that interest, they are ever ready to welcome the victor. The chief that has embarrassed his administration and alienated his supporters in efforts to surround himself with men personally devoted to his fortunes, sees eventually with apprehension and shame that their support is governed wholly by policy, and their friendship by self-interest. An officer who is saluted on every hand with cordial recognition to-day, is passed by to-morrow with cold indifference. His star, as long as it is in the ascendant, excites attention and speculation; but a day is sufficient to destroy the prospects and blast the hopes of the most aspiring, and call from obscurity men without friends or

* This statement, however, has its limitations. There are many instances where managers of railways have been continuously held up to public scorn, their motives impugned and their actions bitterly criticised by the public press.

prospects of advancement. These features of corporate life attend more particularly autocratic forms of government such as characterized the service of railroads in their early days; they are, however, still to be found, here and there, in a mild form, but are everywhere tempered and modified by the influence of the owner, who is as much concerned in building up competent men as he is in building up his property.

In every railway organization, underneath the surface, the most active, albeit good natured, rivalry exists. The strife to which this gives birth renders the life of the railway man one of continual surprises and harassing perplexities. This is unavoidable where so many men possessing substantially the same peculiarities of education, temper and object, are brought into active intercourse.

The finest administrative ability that can be found animates and controls our railways. Doing a colossal business, extending over immense areas of country and employing thousands of men in the prime of life, energetic and ambitious, moving in their places with the precision of soldiers, yet each animated by a determination to achieve personal success, their successful government demands abilities of the highest order.

How to control these myriads of men without destroying their individuality and pride; how to throw around them and the officers that control them the safeguards essential to the protection of a company's interests, are questions that occur

to all who are interested in making the service efficient.

While the organization of different corporations appears, to a superficial observer, to be substantially the same, the widest diversity exists. Thus, roads situated in the immediate vicinity of the proprietors are held under greater restraint by the owner, because of such proximity, than those more remote. No organization, however, is to be commended that does not conform to certain well known principles of civil service that experience has taught as being necessary to good government. Such matters are not open to argument. Properties remote from owners, if not properly organized, pass, by easy and imperceptible stages, from the control of their owners to that of their managers. This may be avoided by systematic organization. However, the danger of demoralizing a force by placing checks upon managers, in many cases, deters owners from attempting it. Now, while absolute authority is essential, it should be concurrent. Arbitrary power is prone to be unjust, to disregard common principles of good government; to govern through fear rather than justice. The remedy is simple. But we must look to see this remedy applied by those whom it is designed to hold in check. Nothing can be accomplished without their active sympathy and aid.

Methods of organization necessary to secure good government under all circumstances must originate with the manager; they dignify his

office, ennoble his character and add to his fame. This is true of both public corporations and private enterprises. The task, while simple, demands thought and elaboration; it requires the enforcement of such safeguards as will secure the unity of the force as a whole without weakening the authority or lessening the responsibility of those entrusted with the management of affairs. In constructing such an organization the builder must be sincere; he must also be worldly wise. He must possess practical experience, coupled with a knowledge of the principles that underlie the control of men and the building up within them of those qualities that distinguish highly capable and faithful men from those who lack such characteristics.

In every age men have clung with desperate tenacity to every species of power, even though its exercise might be contrary to the plainest dictates of reason and good government. If honestly performing their duties, they were unmindful or neglectful of the uses that might be made of their power by successors in trust; if not honest, they were indifferent. It is this fact that has rendered it so difficult to eradicate the evils of misgovernment. Added to this, it has not infrequently happened that those most concerned did not realize the necessity or practicability of reform. Thus urgent changes have been delayed for centuries and in some cases have never transpired at all. The principle is as applicable to private practice as to public experience.

However, great advances looking to the impersonal organization of railroads have been made. We owe these in the main to the chief managers of railroads: to the officials immediately in charge of different properties. But organizations of this kind providing alike for the good, the indifferent and the bad, are never secure; they invite to their destruction the unfit, the inefficient and the designing. This is the experience of all kinds of corporations, but is more true of public than private enterprises.

CHAPTER IX.

DETAILS OF ORGANIZATION.—PRINCIPLES OF GOVERNMENT.

The Board of Directors of a corporation possesses supreme authority over its affairs and over the officers and employes entrusted with the management, subject, however, to the company's by-laws and the laws of the country. The number of directors varies upon different lines.* They are elected annually by the holders of the capital stock.† In some instances, bondholders are, for special reasons, allowed to vote. The privilege, however, is an unusual one.‡ Directors are commonly elected for one year. Sometimes, however, they are elected for a term of years. The period is regulated by law. When they are elected for a longer period than one year, the board is classified; thus, if directors are elected for three years, the term of one-third of the board expires annually. Three years are required

* The Nashua & Lowell Railroad had four directors; the Indianapolis, Cincinnati & La Fayette Railroad, nine; the New York, Lake Erie & Western, seventeen.

† "The annual meeting of the stockholders and election of directors shall be held on the first Wednesday in June in each year, at the office of the Company in the city of Chicago."—*By-laws, Galena & Chicago Union R. R. Co., 1859.*

‡ The particulars of stocks and bonds are described at length in the volume "Constructing, Financing and Maintaining."

to completely change its personality, or two years to secure a majority. This is the object of the law, the theory being that such changes should be gradual.

Each share of capital stock entitles the holder to one vote at the annual election or at any special meeting of stockholders. But the stock must have been owned by the person when the stock register was closed, which event occurs from fifteen to thirty days prior to the election, according to law or other provision. The principal object sought in closing the stock ledger or transfer book in advance, it may be said, is to enable the company to ascertain who the stockholders are, and otherwise fix the identity of those entitled to vote, so that no confusion or irregularity will occur on the day of election.

The votes of stockholders are cast directly for the directors, the same as votes are cast at political elections for boards of supervisors. No one not a stockholder is eligible as a director. When the polls are closed, the candidates having the greatest number of votes are declared elected by the tellers or persons who count the ballots. The process is very simple.

The time that elapses between the regular meetings of the board of directors varies upon different roads. Sometimes the meetings are weekly, sometimes semi-monthly, sometimes monthly.* It is customary with many compa-

* "The regular meetings of the board shall be held at the office of the company, in the city of Chicago, unless otherwise

nies to appoint permanent committees for various purposes.* Business is thought to be facilitated by such a course. The business that comes before the board having reference to a branch of the service which a committee has in charge is usually referred to such committee with power to act, or with instructions to report back to the board. Permanent committees usually possess all the powers of the board. Their acts must, however, in the end receive the concurrence of the directors.

As may readily be imagined, the greatest possible diversity exists in regard to the acts and responsibilities of directors. In some cases they are perfunctory; in other cases they take active cognizance of everything that occurs. Much depends upon the class of men composing the board, the financial interest they have in the property, and the time they can give its affairs.

English directors, as a rule, exercise a much more minute supervision over properties under their charge than do those of America. They exercise the same minute surveillance that they do in their own private business. Thus, upon an English road the full board of directors will perhaps not have more than one or two meetings a month, but its members will be divided and sub-

directed, on the third Wednesday of every month, and a majority of the directors elected shall constitute a quorum for the transaction of business; but a less number than a quorum may adjourn from time to time until a quorum shall be obtained."—*By-laws of Galena Road, 1859.*

* Thus, executive, finance, auditing, organization, etc.

divided into many minor organizations or committees, such as a Special Committee, holding meetings intermediately between the meetings of the full board, and devoting itself to much the same class of business; a Finance Committee, taking cognizance of financial matters; a Permanent Way Committee, which accepts tenders, approves contracts, orders repairs and authorizes expenditures connected with permanent works; a Locomotive Committee, which deals with matters relating to equipment; a Rates Committee; a Debts and Freight Claims Committee, and a Traffic Committee, which last takes cognizance of the staff and the pay of employes, also the working and accommodation of traffic. Besides these the board will have other committees having supervision over hotels and refreshment rooms, legal and medical matters, supplies, etc.

The authority of the directors of a railroad is exercised through officers. The executive officers in America are a chairman of the board, president, treasurer, secretary, and their assistants. The executive officers have more or less assistants; thus, a Pennsylvania road has three vice-presidents, three assistants to the president, an assistant secretary, and an assistant treasurer.

The chairman of the board, the president, secretary, and treasurer, are elected annually by the board of directors. The election occurs usually at the first meeting of the directors after the annual meeting of stockholders. The duties of these officers are practically the same upon

all roads, so far as such duties relate to the legal perpetuation of a company's organization, including the signing of stock, the issuing of bonds, and the making of contracts. Here the similarity ends.

The duties of executive officers are specified in the by-laws. The practice is found to be a good one, and is generally observed.

Wherever the government of a corporation is an autocracy, the effect is observable throughout its affairs; if an officer under such an organization possesses ability, tact and aggressiveness, he enlarges the field in which he labors until he is overcome by someone stronger than himself; if timid or lacking in worldly wisdom his power is quickly filched by others, and he finds his discretion more and more circumscribed each day; the greatest diversity appears from time to time in connection with the duties and responsibilities of particular officers; the chief enlarges, diminishes, or changes the power of subordinates as he pleases; he is superior to conditions or men, making and unmaking the latter as he would plant or transplant a tree, cultivate or leave uncultivated a field. Ability, experience and faithfulness count, but must be coupled with the tact of the courtier. This explains many frequent and unaccountable changes upon railroads thus organized. Under such condition of affairs it is impossible to know what a day may bring forth, what duty a particular officer may have assigned him, or what duty withdrawn. It is also impossible to tell where authority really rests; an official may be nominal or real—a mere shadow or a *bona fide* substance. Because of these peculiarities it is always necessary to know the particulars of an organization before attempting to judge of its affairs.

I do not wish to be understood as saying that merely personal influences govern where the chief officer of a corporation is absolute. His action is always tempered by policy; by the needs of the service; by public opinion; by a sense of justice; by the influence of owners. Those who work for corporations, as a rule, grow or shrink according to natural laws. Men forge ahead or recede in the struggle according to the measure of their capacity. No power on earth can keep a really great man in subjection, unless he himself is a party to it, nor can it long bolster up a weak man. But positions will ebb and flow like the tide, to-day at the full, to-morrow shrunken and depressed.

Upon many lines no important office can be filled except after consultation with the directors. Where an officer's appointment is approved by a board of directors, it pre-supposes that he cannot be finally dismissed without a hearing; to the extent that this is so an attempt is made to lift him above the temptation to neglect the interests of the owner to forward those of a contrary nature. If a board of directors may venture to assume the responsibility of passing upon the principal officers of a company, the question

suggests itself whether it is practicable to extend this power. It is not probable that a board could actively interfere with minor positions, but may it, through rules and regulations devised conjointly with its manager, establish general conditions that shall govern under all circumstances and shall protect alike the employer and employe? It is possible that joint action may not be necessary. The chief manager of a railroad may do it alone. Indeed, his acts each year tend more and more in this direction. The disposition is to be encouraged, for a service not thus balanced and protected is like a wooden bridge: it may be sound, or its core may have rotted away without giving any outward sign thereof.

The ability and fitness of the older officers of a railway are represented with more or less accuracy by the positions they occupy. They may not be conscious of this, but it is true. But under all personal forms of government innumerable men succumb in the struggle because of lack of tact or temperament, who, under more liberal conditions, would make excellent officers or employes. Autocratic forms of government necessitate special social adaptation upon the part of subordinates; these qualities, while admirable, are not in every instance absolutely essential from a business point of view. Those who do not possess them, however, are the losers thereby. It is a question of the survival of the fittest, the survivors being those who possess in all respects the greatest versatility of talent.

The railway officers of the world stand intellectually as high as any other class of men; as much of their time as possible should be given to their business; as little as possible to the mere maintenance of place.

The officers of a railway are greatly dependent upon each other. Inefficiency cannot exist in one department without influencing other departments. But this will be intensified enormously if the duties of officers are not clearly defined, if they are not able to adapt themselves to each other's peculiarities through a careful classification of their respective duties and prerogatives. This is self evident—a simple and primary truth. Like everything I have to say in regard to railway organization, it is old and has been understood for thousands of years in its application to public organizations. It is also generally understood and applied by those in charge of private corporations, but because of the newness of the latter its application to them is not universally known or recognized. This is why I give it a place here. No one who understands the principles of good government will dispute my premises.

Private corporations of all kinds, not alone railroads, have grown beyond the simple provisions contemplated for them in their inception. The wise among their managers and the thoughtful among their owners generally recognize this; their knowledge and acquiescence find illustration generally to-day in railway practice. The

change in this respect has been most marked. It is a recognition of different conditions. When railways were small and their affairs restricted, particular men could overlook every detail and still not be burdened. But with their enlargement this was no longer possible. Hence the change that is going on to-day upon every railroad and that has been going on for the last twenty-five years.

The government of railroads is divided among particular departments. The business transacted in each varies, just as the duties of officers vary. The general purpose, however, that affairs shall be assigned to the department having natural jurisdiction is generally observed.

The departments of a railroad may be briefly summarized as follows: The administrative department exercises general supervision and control over the whole property, and also sees that the legal status and rights of the corporation are preserved.* It is the duty of the operating department to handle the traffic, keep the equipment, machinery and property in order, exercise a general supervision over the operating force, and perform all the duties and responsibilities appertaining thereto. The engineering department has charge of construction. It also has supervision over the track, and in some cases the track force. In many cases the engineering de-

* This department embraces the president, vice-presidents and assistants, including the secretary of the company and his force.

partment is a part of the operating department and wholly subordinate to it. The traffic department makes and enforces rates, and is exercised in building up the company's business: its duties are very important; in some cases it is under the direction of one head, in others is divided, freight and passenger being kept separate. In some instances it is independent of the operating department; in others, it is a part of it. The law department embraces the care of matters that come properly within the province of lawyers, including the drawing of contracts, leases and agreements, the prosecution and defense of suits and the maintenance of the legal interests of a company. The settlement of claims is in some cases entrusted to this department; in others it constitutes a branch of the operating force; in others a distinct department.* The duties of the financial department embrace the negotiation and sale of the company's securities, including its stocks and bonds; the payment of dividends, interest, sinking funds and kindred matters; it also has to do with collections and general disbursements. The accounting department embraces the machinery required to audit the accounts of a company and ascertain results; to see that returns are made of receipts and disbursements and that proper records are made

* In some cases the duty of settling claims is apportioned to different departments. Thus, one department will settle claims for injuries, damages to property of people living along the line, and so on; another department will settle freight claims, another baggage claims, and so on.

thereof: it is the custodian of the books and accounts of a company.

Such is a brief outline of the duties of the various departments. They are further referred to herein in connection with the duties of officers. They find repeated reference and illustration elsewhere herein. It is impossible to describe the departments distinctly or separately because of the intimate relation they bear to each other and the natural blending of the work.

The various departments of a railroad are subdivided in such a manner as is most economical and convenient. Thus the executive department embraces the chairman of the board, the president, secretary and treasurer, with their aides and assistants. The operating department embraces the officer having immediate charge of the duty of operating and maintaining the property, also the general superintendent, superintendent of motive power and machinery, division superintendent, superintendent of telegraph, superintendent of dining cars, purchasing agent, trainmaster, supervisor of track, master mechanic, etc. The engineering department includes the consulting engineer, chief engineer and division engineer. Within the scope of the legal department come the general counsel, attorney, claim, land and tax bureaus.* The traffic department embraces the general traffic manager, general freight agent,

*The claim, land and tax bureaus are, however, in many cases, so important as to necessitate separate and distinct departments.

general passenger agent, general ticket agent, general baggage agent, division freight agent, local freight agent, local passenger agent, traveling freight agent, traveling passenger agent, foreign agent, and advertising bureau. The accounting department is subdivided under the immediate charge of the comptroller, auditor, freight auditor, ticket auditor, auditor of disbursements, and so on.

The methods of departmental officers of railroads partake largely of their characteristics; machinery that would be efficient in the hands of one person, would not answer at all in those of another. The railroad business, like other commercial affairs, is adaptive. The officers of railroads are generally permanent; civil service rules are fairly well applied to them. Changes of ownership, or in the directory, are rarely attended with changes of officers, unless cause exists. The management of railroads has changed greatly in this respect. Formerly the installation of a new manager meant the change of his principal subordinates; he looked upon all offices as a private perquisite rather than a trust. This explains why railroad corporations in former times were the subjects of such tremendous fluctuations; were so generally and properly distrusted.

With these explanations and remarks, I proceed to describe more particularly the duties of railway officers. It will be understood, however,

as I have repeatedly stated, that these duties vary upon different roads; while in the main the same collectively, they are not divided on the same basis by different companies. That my description is otherwise imperfect, goes without saying. The subject is too vast, too complicated, to be described here in its entirety.

CHAPTER X.

DEFINITION OF TITLES OF RAILWAY OFFICERS AND EMPLOYES—KEY TO THEIR SIGNIFICANCE.

As titles seldom have the same meaning upon different roads, or a like meaning for any length of time upon the same road, it is necessary, in any discussion of matters affecting railroads generally, to avoid the confusion their use would occasion. This may be done by using only those of a general character. This is the rule I have tried to observe in my books. Thus, when I refer to the "treasurer," I mean the financial officer in charge; on one road he may be treasurer; on another a vice-president, comptroller, cashier, paymaster, or clerk. The title "accounting officer," is used in the same way; under that general head all officers who have authority in connection with the accounts are grouped, and when reference is made to the accounting officer it means the particular officer whose duty covers the thing in question, whether performed by a chief clerk, ticket accountant, freight auditor, auditor, comptroller, or vice-president. In the same way the title of "storekeeper" represents the person who has charge of the supplies of a company at the shops and along the line of a road or who renders return thereof. Two distinct officials may perform these duties. The title of storekeeper also appropriately covers the person who

keeps the time of men and renders account thereof, because he generally has charge of material as well. Upon some roads the storekeeper will be the master mechanic, upon others the foreman, division superintendent, civil engineer, stationer, clerk, timekeeper, and so on.* The title of "agent" naturally covers those in authority at stations;† it includes the agent, ticket seller, cashier and other attaches. The title of "counsel" covers those connected with the legal department; "traffic manager" those having charge of the traffic; "division superintendent" the official having charge of the operating department of a division, including the civil engineer of a division, although the latter may be an independent officer. The title of "manager" is used in a general sense to designate the officers collectively who manage the property. The title of "general manager" means the highest known managing officer; he may be a president, general manager or superintendent.

With this explanation, the general application of titles may be understood. When I use a title in descriptive writing, it is because of its special appropriateness, or to minutely characterize particular instances, not as expressing an opinion, directly or indirectly, as to what the title should be.

* Indeed, all of these officials have more or less to do with material and labor accounts. I suggest the title of "storekeeper," because it applies more generally than any other.

† The title of "agent" is also sometimes used to designate every person in the employ of a railroad.

CHAPTER XI.

THE CHIEF EXECUTIVE AND HIS DUTIES—THE ORGANIZATION AND CIVIL SERVICE OF RAILROADS.

[NOTE.—In some cases this officer it called a president; in others the chairman of the board, according to the method of organization. It is possible that these offices may be combined. In England the chairman of the board exercises a careful supervision over the affairs of the company in every direction. He is expected to make a speech to the stockholders whenever they are convened, and they interrogate him in reference to his policy and measures in the same manner that members of the parliament of Great Britain personally interrogate the representatives of the government in the House.]

In the early history of railroads, the president of a company rarely participated in its physical management. Such matters were left to the superintendent. The president was usually a man of wealth, chosen with a view to the favorable effect his name would have upon investors rather than because of his knowledge of railroad details. His responsibility, therefore, was merely nominal. The operating officer was expected to consult with him and listen to his views when he had any to express. He performed the dignified office of chairman of the board of directors, and was a member, *ex-officio*, of its various committees. He signed its bonds and, in some cases, its certificates of stock. He was in many cases merely a figurehead. However, his advice was invaluable

when given. His duties did not require his presence in the immediate vicinity of the property. On the contrary, the fiscal interests of the company frequently required that he should reside at the financial center of the country, and that he should be well known to capitalists. He had supervisory power and direction over all the affairs of the company, but he exercised these duties only in a general way. The treasurer looked after its interests in one direction, while the superintendent had entire charge of local matters.

With the lapse of time the dignity and power of the office of president, and the distinction it conferred, attracted the attention and enlisted the endeavor of the superintendent. The power that the latter exercised stimulated his ambition and excited his hopes. The method of administration then in vogue—or rather the lack of method—made him the anchor of the property: the virtual master of the owners. Proprietors and directors alike were compelled to hearken to his views. More and more he became indispensable, because more and more he concentrated in his own hands every species of power and responsibility. At first the conferring of the title of president upon him was rare, but with the lapse of time it became general. The practice is a good one. The moment the title was given to one it became necessary to give it to all. In this way it spread until it may be said to have taken the place of those formerly in use by this

class of officers. As a rule the title has carried with it all the prerogatives of former presidents. I look for the absorption by the chief operating officer of all the great dignities that a company possesses. This I am inclined to consider favorable to the general interests of railroads rather than otherwise. The chief managing officer should not be hampered. On the contrary, his dignity should be swelled to the utmost consistent with the observances and principles that appertain to good government. The title of president cannot affect him otherwise than favorably. Its dignity is such as to appeal to his imagination and excite his highest aspirations. It is impossible that he should degrade it to the office of a mere partisan; it will or should broaden his vision and generalize his work. It is a great misfortune to a company to have a managing officer who is too zealous, too much given to detail, who interests himself too much in petty affairs. Such zeal, however commendable in its incipiency, in time quite destroys the usefulness of its possessor. He loses his reflective powers, his ability to grasp subjects as a whole, his ability to act dispassionately. His ambitions become petty and his practices correspondingly small.

An administrative officer, in order to be able to perform the highest service, abstains from burdening himself with work to an extent that precludes his devoting a considerable portion of each day to a retrospective and prospective view of his business. An accurate conception of his

duties and responsibilities is impossible otherwise. Nor does he attempt work that may be done with perhaps greater facility by less expensive agents. The over-zeal that leads an officer to commit such offenses against good practice is attributable to various causes. It arises generally, however, from a genius for work and a superabundant energy; sometimes from inability to consummate results through others; sometimes from a misconception of his office. The offense is always a pardonable one because it is an honest one.

The office of president requires that its incumbent should blend in himself the qualities of the student and executive. Where the president actively interests himself in affairs, the organization is more or less characteristic of his mind and methods. If a practical railway man, his supervision is constant and minute and follows given lines. If bred a merchant, banker, lawyer, or soldier, he rarely busies himself with details, leaving such matters to his subordinates.

Many men who have never had any practical experience whatever with railroads have made admirable executives; they have been content to act as judges; to supervise the work; were unprejudiced in their action; general in their scope; trusting and respecting those under them. Wherever such executives have actively interfered, they have, as a rule, been unsuccessful. The details of the business require to be learned from the bottom up, and not from the top down, and those who act must understand their purpose and

bearings. One of the earliest writers* on railroad subjects, referring to the office of president, said that the prosperity of a property very largely depends on him:

"Not, however, as is often supposed, by his vigilance and attention to mere details—though on a short and unimportant railway he may consistently give much attention to details, and perhaps save the duty and expense of some other agent; but on what may be termed important railways, his attention should be directed to the general interests of the institution, and especially to see that he has over each department of service men competent and faithful to carry out in the most efficient manner their respective duties. It is in this last duty that he will find the most important field for his care and vigilance. All his examination of details should be with reference to knowing how far he has been successful in this feature of his administration. Here lies the foundation of sound railway management. In the varied and numerous matters involved, it is idle for the chief executive officer to attempt much personal knowledge of details, and in devoting himself to these, except on occasion of special examination in reference to the duties of subordinates, or as they come incidentally or by complaint to his notice, he will probably neglect his more appropriate and important duties. His first duty will be to present to his board for appointment, as heads of the several departments, men

*John B. Jervis.

who have education in the different branches of service to be provided for. His talent as a business man will be amply proved in the discharge of this duty. If he proves himself a discreet man, with an eye single to the prosperity of the institution, having a frank and high-minded sense of duty, he will gather around him a class of men that will produce order, regularity and efficiency through every department of the business of the institution. He may not succeed fully in the outset of his engagement, but he will ultimately produce the most favorable management."

Wherever an autocracy exists it presupposes the absorption by the person in power of every important prerogative; the making of subordinate officers mere attendants. This lowers the purpose and accomplishment of an organization in many important particulars to the level of a single man's energy and conception. Every act, except of a mechanical nature, must find inspiration in him. This retards. Men will not go forward in the discharge of a duty if not fully assured of support, and this they cannot feel when it is dependent upon a thing so changeable as a man's will, and that man an agent like themselves. The effect of such a state of affairs is to weaken the pride and personality of men and sap their intellectual growth. It destroys initiative force. This is a matter of the greatest consequence to a corporation requiring the constant attention, wisdom and fidelity of innumerable men of talent, experience and energy.

The magnitude of the affairs of a railway, its constantly changing aspect, its immensity of detail and the wide extent of country it covers, prevent any man from having more than a cursory knowledge of its affairs as a whole. I do not think I err when I say that no officer ever yet succeeded in comprehending fully a single department of the service. The most that anyone can do, if called upon to exercise general supervision over a railroad, therefore, is to act as judge, or umpire. The moment he attempts to perform routine work, to enter into details, that moment he retards instead of accelerates affairs, because he takes affairs out of the hands of those who are practically qualified, and to whom every company must look finally for initiative and performance.

The greatest and best president a railway company can have is the one that devotes himself most to its general affairs, who concerns himself least with routine work; who looks to results, and the selection of fit men and the adoption of good methods. I do not mean to say that a president should not keep himself thoroughly advised of the business of the different departments; he cannot act intelligently without this knowledge, but he will greatly strengthen the interest and intelligence of those under him by extending to them every latitude consistent with unity of service.

The office of president of a railway requires that its incumbent should possess in the highest

sense the elements we denominate statesmanship: ability to effect such results as will be most conducive to the prosperity of a property during and after his time. This involves talent, fidelity, singleness of purpose, sobriety of judgment, knowledge of men, and familiarity with the laws of the country and the general drift of affairs. These qualities the presidents of railroads possess in an eminent degree, and they will grow more conspicuous with the lapse of time and as the necessity for their exercise becomes more and more apparent.

Man's desire to dignify himself has in all times been a source of good to mankind, in this that it has led him to relinquish personal advantages that belittle him, in order to achieve things really great. The spirit which should animate so exalted an office as that of president should be paternal, a feeling of a father for his children; a feeling of benevolence—never of contention or strife; a feeling of fellowship—never of rivalry; the spirit which leads men to ask whether a thing is for the best or not, without reference to its effect upon themselves.

It should be the duty of the executive to build up those under him, to foster their pride in their profession, and their knowledge of its requirements; to magnify their office in every way; to make them feel that they are essential to the prosperity of the property, and that he recognizes in them necessary and valuable coadjutors. To this wise policy our railway companies are

indebted for the efficient corps of officers they possess.

A man who cannot fill the office of president without seeing in others, even those of the most commanding talent, possible rivals, ought to be relegated to some less exalted duty. Such men belittle power and retard progress.

An executive should be satisfied with the general credit that attaches to him as the directing mind; he should not seek to supplement his office with individual performance of details belonging to subordinates; such matters should be left to others, and the credit of performance that attaches thereto awarded accordingly.

In thus sketching the requirements of the executive of a corporation, I am happy in the belief that I describe that which actually exists; that I am not painting any fancy or improbable picture. The greatness of the men who occupy the office makes them everything they should be. Fitted to rule an empire, they outgrow the petty greed that leads men to enter the field as the competitors of subordinates. It is too undignified. The kingly rule they exercise implies kingly attributes—manhood, recognition of others, real superiority. It may be there are exceptions to the rule. If there are I do not know of them. I sketch an ideal officer—the standard to which everyone who fills the office should attain.

The office of president of a great corporation is not inferior in dignity to the most exalted. In the case of railroads its incumbent is called upon

to perform acts of the greatest material interest to his country. Everything he does affects, it may be said, favorably or otherwise, the trade of the district his line traverses. He occupies, because of this, a semi-public position.

Upon every railroad the peculiarities of its different presidents become legendary and employes delight in recounting them long after the incumbents have disappeared from the stage. A king in his progress through the country could not be treated with greater respect than a president in passing over his line. His car is like a meteor, followed by a train of attendant satellites, the focus of all eyes, the center of all interest.

The dignity of the office of president is great. Its responsibilities are still greater; among the greatest of these is the duty of placing the organization on a Permanent basis; on a basis providing for every contingency of man's disposition, ability, strength and weakness. This duty the president may perform fully and thoroughly without exciting opposition or criticism from any quarter. It cannot be so performed by anyone else. It is impossible to conceive of a more beneficent labor.

Such in brief outline is the president of a railroad. Next to him the chief managing officer may be taken up. This office is intimately associated with that of the executive, and in many instances is filled by the latter. In describing it, therefore, the duties of the president will in many cases be further explained.

CHAPTER XII.

THE CHIEF OR GENERAL MANAGER AND HIS DUTIES—THE ORGANIZATION AND CIVIL SERVICE OF RAILROADS.

[NOTE: In some cases this officer bears the title of president. He is the person immediately in charge of the property. When not the president, he is the latter's chief of staff, and is his natural successor. I speak of his duties in common with those of the president.]

I do not give this officer a more definite title because of the variableness of his duties. In the early history of railroads he was known simply as the master of transportation or superintendent. But, as knowledge is power, he quickly became general superintendent, then manager, then general manager. From this point of vantage the higher and more dignified title of president was grasped. The physical life that permeates our railroads has its center in him. To the myriads engaged in the practical details of operation, he is the embodiment of fate; the man on horseback; the arbiter of the destinies of many men. His smile animates; his frown withers. A man of courage, of resolute intent, of many devices, inured to strife, accustomed to command, he rides down every obstacle that impedes his course. The arbiter of customs and men, he is superior to forms. A man of comprehensive mind, of rare

administrative talent, experienced, firm, ready in resource, an adept in analysis, of rapid decision, of immovable disposition, he may be destroyed but cannot be diverted. Incessant in application, self-possessed and attentive, he is the incarnation of activity and energy. This is the man who outlines the practical policy of railroads and in many instances pursues to the furthest details their methods and plans of procedure. Born to command, he quickly brings every contrary disposition within his influence. His progress is rapid according to the measure of his talent and the opposition he meets with. But whatever the latter may be, it is futile. It is this man that we must look to for the full systemization of railway organization; without his sympathy and co-operation it is difficult, if not impossible. In the consummation of this work, the debt the world now owes to his genius and energy will be perpetuated and increased a thousand fold.

The motives of the general manager are of the most felicitous nature. Selfish they doubtless are, but every material good has had its birth in selfishness. He believes that it is only by active co-operation, at once animated, cordial and united, great results can be accomplished. He believes in co-operative effort based on graduated rights and prerogatives. He recognizes that every office in the vast structure must have its counterpoise; that such disposition is necessary to equitable working and the enforcement of a comprehensive and continuous policy.

The directors and owners of a property are the advisers and coadjutors of the general manager. Their supervision and direction are, as a rule, attentive, intelligent and persistent.

It is no disparagement to the other officers of a corporation to say that the executive is in all respects their superior. The necessities of his position compel him to be a man of versatile knowledge and happy intuitions. He is generally familiar with affairs and the peculiarities of men. His knowledge is both general and practical.

A company, no matter how favorable its situation, cannot long enjoy prosperity if its executive is lacking in ability and fidelity. He must be familiar with every phase of its affairs; this last is of vital importance. A man noted in railway management has said that an officer of inferior capacity, long in the employ of a company, is more desirable than a new officer of greater ability. This is undoubtedly true, and explains the indisposition of railway companies to change their managers. It is as true of the president of a company as it is of a brakeman.

In selecting his subordinates, the chief managing officer is governed by a desire to secure the most efficient assistants possible. Once their selection is perfected, he allows them the greatest latitude consistent with the harmonious working of the organization. In this way he increases their understanding and heightens their individuality and self respect. Such a policy

brings together men of the best type, and secures from them the highest service of which they are capable. An executive who should descend to a fussy interference with the duties of subordinates would quickly destroy the dignity and sense of responsibility of the persons over whom the surveillance was exercised. They would quickly lose interest in their work and, as a rule, would become inert and inattentive, except when acting under his immediate eye.

The kind of talent corporate service needs requires to be dispassionately governed; it must be equitable and conformable to the interests of the property and all concerned, otherwise a service will quickly degenerate into mere sycophancy. When men are not trusted, are not allowed due discretion, they are neglectful; are lacking in efficiency and interest. If denied the prerogatives that men esteem and that are necessary to their development, they fall easily and naturally into the habits of clerks and messengers. They will not take the initiative; will bring nothing to the common stock but mechanical effort.

The highest qualities of manhood that carry men forward and upward to positions of supreme importance and responsibility ill brook restraint. In many cases men thus endowed find it impossible to share power with others. Absolutism is with them a concomitant of existence. If denied it, their usefulness is impaired by incessant strife and intrigue to obtain it. Because of this peculiarity of human nature, everything pertaining

to the active physical life of railroads compatible with the safety and perpetuity of the property and proper organization is left to the discretion of the executive. While the directors and owners never cease to actively interest themselves, they do not do so openly. They act through others, planning, suggesting, advising. Tolerant of the faults of their manager, they are inflexible only in requiring him to be governed in all he does by the best interests of the property and those working for it.

No position in commercial life requires greater application, or the exercise of a nicer judgment, than that of the chief managing officer of a railway. His duties are of the most diverse character. Their highest fulfillment requires him to possess the manners of a gentleman with the discernment and methods of a business man. We cannot attempt to follow him in the round of his duties, nor fitly describe their number or performance. They are without sensible interlude. His mind is trained to address itself to present questions, to the exclusion of those that have gone before. His method is progressive in its character; one moment we find him busy examining some new device, the next listening to the complaint of an officer or employe, the next receiving a delegation of citizens; one moment closeted with the attorney, the next with the financial officer or traffic manager. His duties are those of a director, a judge, a semi-public servant, a fiduciary agent. Ever in search of more perfect appliances, he

studies with unvarying interest all new methods. While he frequently submits the devices that are laid before him to exhaustive tests, he generally decides impromptu for or against them. Among other duties he personally inspects the property under his charge, goes over its track, visits its shops, notes its buildings, examines its structures, and passes upon those that are being built. Conducting his examinations with celerity, they are yet minute and comprehensive. The condition and excellence of the equipment especially interest and concern him. It is safe to say, however, that it never approaches the high state of perfection he desires. The condition of the road bed and track is a matter of supreme importance to him. He understands better than anyone else how much the preservation of the equipment depends upon the track being kept in good condition. Above all, he delights to exhibit to directors and stockholders a road in the highest state of efficiency, and he is gratified beyond measure if he can excite the envy of a contemporary manager by the perfection of his appliances.

The correspondence of the chief manager is great beyond expression. The extent and character of the communications that reach him are both curious and interesting. Their variety would astonish and amuse mankind. Let us examine a few of the more trivial, picked up at random, the product of one day. In the first we discover the writer securely perched upon a lofty height, from which he discovers, with the

prescience of a statesman, the present and future wants of railroads. These he unfolds at length, his taste running in that way and his time not being a matter of consequence. He has no request to make. He is a humanitarian; a philosopher; an observer, but not a railroad man. The manager draws a sigh of relief when the letter closes. He expected a request for a small loan—a pass at least. Another writer, the third in a family of seven who have distinguished themselves in mathematics, desires to call attention to a new brace which he has patented, intended to prevent the wear and tear of machinery and reduce the consumption of fuel. This brace he describes at length, and gives, roughly, in pencil, numerous practical illustrations from different points of view. He desires its immediate introduction, and hints darkly at a project he has for its capitalization that will enrich all whom he favors. The third letter asks for a permit to ship, free, certain household goods and farm appliances, because of the grief and distress occasioned the owner by the death of a third wife. Another asks for a special rate, basing his claim upon the fact that his uncle was at one time an active member of the legislature, and that he, the writer, hopes some time, with the assistance of his friends, to attain a like eminence. Another writer—a lady—reports at great length on the reprehensible conduct of an employe, who stared at her with unvarying pertinacity during a ride of several miles. However,

the offending eye, happily for her, was afterward discovered to be of glass; bought by the company to replace one the wearer had lost in its service. The stare, therefore, was a corporate, not an individual offence. The sixth letter claims an annual pass—not that the writer, as he explains, is at present engaged in any way that warrants him in soliciting such a favor, but it was extended to him at one time, and he desires its continuance. Another writer encloses a few worn and battered postage stamps in a letter humid with self abasement and the fumes of tobacco. He desires to make reparation for the crime of stealing a ride upon the company's cars, at a particular date, which he mentions with scrupulous precision, but upon which day, according to an old calendar, no trains were run. The stamps he hopes will be received; he expects no recognition; his conscience tells him he should make restitution; he does so, and in the performance of his duty rests content. Still, he is poor and the father of a large family in destitute circumstances; he would therefore feel grateful if the company could consistently give him something to do—the position of agent or conductor, perhaps. While he does not feel certain he could operate a freight train, he feels quite assured he would have no difficulty in handling an ordinary light passenger train; if not possible for the company to favor him with a position at once, he would feel grateful if it would furnish him with a carload of fuel to keep his family from freezing. Still another

communication solicits a liberal subscription on behalf of an infant charity the writer has in charge; an association of foundlings and half orphans. Its merits appeal alike to all classes, ages and sects, and the great corporations of the country, by rendering such worthy enterprises the timely assistance they require, will, as the author explains, forever endear themselves to the masses of the people, on whom they are so entirely dependent.

Communications such as these, although prolific in number, constitute only the froth that floats into the office of the managing official. The bulk of the letters that reach him affect directly the welfare of the property he represents. These letters have to be analyzed and considered before they are answered. And in the answers the most painstaking care must be observed, lest some ambiguous or abrupt sentence should creep in that would mislead or offend the recipient. The letters emanating from the manager of a railroad possess the brevity of business communications, combined with the cautious construction that marks the correspondence of a diplomat.

The duties of a chief managing officer vary with each succeeding day, but each day is filled to the full with its attendant incidents. At ten o'clock we find him receiving those who seek his presence. The idle or frivolous he dismisses with a brusque courtesy that sometimes offends. Each comer receives the consideration his position or

the nature of his case warrants. These calls are followed by others from such subordinate officials and employes as can find excuse for seeking his presence.

The executive of a company has much to say to his subordinates. It is his business to keep them accurately posted, from day to day, and from hour to hour, in reference to the policy of the company, whether secret or otherwise, so far as it affects their departments. In no other way can even *quasi* co-operation be secured.

While the office work of the chief managing officer is arduous in the extreme, his duties along the line are not less so. Compelled to travel with the utmost expedition, he yet manages to observe the condition and wants of the property, and the bearing of the company's servants. The questions that have been held in abeyance awaiting his visits are carefully classified and arranged by the zealous officials. At every stopping place he finds these questions awaiting decision. They appear as interrogatories. Not one of them can be avoided or ignored, and upon the wisdom and experience that direct his decision rests his reputation with the employes. For, while the subordinate obeys the directions of the officer over him with blind obedience, yet he passes judgment upon every act of his superior. This judgment is not the less effective that it finds no audible expression.

Aside from the local duties performed by the chief managing officer, he must be able, in all

the multitudinous questions that arise between his company and its connections, to advise and, if necessary, direct the officers of the departments interested. They look to him. He must see that they are not overreached through craft or superior ability. This duty involves a range of knowledge that merely cramming can never enable him to attain. It must be practical, and its possessor must be to the "manor born."

The duties of the managing officer require him to attend in person many important meetings and conventions. Every company has a foreign, as well as a local, policy. The success that attends its policy depends largely upon the ability and experience of its manager. While his assistants can afford him much valuable aid, yet he must himself be able to discover and frustrate the purposes of rival lines.

Another duty of the chief managing officer is to keep the board of direction advised of the wants of the company. This involves much more than appears on the surface. It requires accurate knowledge of resources and an exhaustive forecast.

The painstaking investigation and careful thought required of a chief managing officer to enable him to compass effectually the needs of his office, cannot be described. Only those schooled in such matters can appreciate them. A knowledge of them is, however, necessary to enable us to understand fully the supreme importance of the office and the necessity of its occupant

possessing a happy conjunction of ability, faithfulness, experience, temperament, and mental and physical health.

The duties of the office vary upon different roads, being dependent upon the incumbent's industry, ambition, intelligence, experience and character; also somewhat upon the industry, intelligence, experience and character of those about him. If he is weak or inefficient, decline shows itself. It is as when a malady seizes on the seat of life in an individual; instantly every member, every tissue, falls away, suffers, shrinks, decays.*

What Sir Henry Rawlinson says of political corporations is true of railroads. The decay, however, may go on for a long time before it is noticed. It may arise from incompetency, neglect, or unfaithfulness. When, however, it is discovered, alarm is spread and a search instituted by the proprietors for a new ruler. But, unfortunately, it cannot be carried on systematically, but cursorily, informally, *sub rosa*. It will not do to have it known that anything is wrong; it would injure the property. The proprietors are thus greatly hampered; fatally, it would seem. Moreover, the new ruler must be a stranger, lest the jealousy of local officers be excited; this is not always the rule, but generally. Finally a man is recommended, or suggested. Little is known of him, and enquiry must be guarded and restricted, lest suspicion be excited. He has,

*Rawlinson's "Ancient Agypt."

perhaps, occupied a similar position—which he has left. The reason of his leaving is, however, hardly ever ascertainable. After more or less secret enquiry, the applicant is, we will say, accepted and installed. This is the first step, and necessarily a step in the dark. The appointee has before him the herculean task of learning the geography of the line; the company's secrets, past, present, future; its business and expenditures; the capability, character and temper of its men, and its system of management. This will require months and years. If he is untrustworthy or incompetent, it will be long before the fact is discovered. At best the new official will only approximate average human usefulness. He will, however, be retained, because of the uncertainty and danger that attends a change. If unfit, the fact will be known to but few; meanwhile the property will suffer; one mishap after another will occur; internal difficulties will arise; financial distress will ensue; scandalous statements will find more or less open circulation; resources will grow less and less. If the inherent resources of the property are sufficiently strong, it will be able to stand the strain. But not always. Overthrow will come sooner or later. There is only one remedy, one preventive. It is to so organize a service that it will not be broken or greatly disturbed by the death or failure of a particular man. The building up of such an organization rests with the owners and the chief managing official; largely with the latter.

Without his sympathy it cannot be accomplished except after long delay and a protracted struggle. The ability, tact and knowledge of affairs he possesses, coupled with his power, make the work a simple one to him.

Many of the details of construction work and much of its responsibility rest upon the chief manager. This is why I refer to it here in connection with his duties. The talent needed in working a railway is required in building it. Those who have charge of construction work should be men of ability, experience, energy and executive talent—men like the executive of a corporation. I have frequent occasion to speak of the characteristics of this last named official. But always from one point of view. I sketch incompletely, and only his iron side; the side the public sees; his official countenance, behind which the responsibilities of his office are hidden. His personality is the reverse of this. It is sensitive and elastic; at once gentle and kind. Like all really strong men with proportionate physical force, his sternness is conventional; a cloak to his sensibilities. When appealed to by the distressed, his heart responds with the warmth and impulsiveness of a woman's. To the world his face is marble, his heart granite; face to face with man's weaknesses and necessities, his countenance is flexible, his heart stirred with generous thoughts. Such are the responsible managers of railroads

apart from the cares and ambitions of place; at once sympathetic, loyal and strong. Such are great business men everywhere—the Cromwells of our time.

The railway officer is a creature of to-day; the product of an era; the creation of a new civilization. He is a man of affairs, of lofty aspirations, devoted to his employer and his business. Versatile in his acquirements, free from prejudices, destitute of hobbies, wise, experienced, companionable. With charitable thoughts, he stands ready to meet the world more than half way in every manly impulse.

In selecting a man to take charge of the construction work of a railroad, the more nearly he possesses the executive characteristics required in operating these properties, the more nearly he will accomplish the highest possibilities of his office. He must be a man able to foresee events and control circumstances. If he is lacking in capacity and resolution, his fretful forebodings will accurately forecast results. His work will be attended with the same unfortunate circumstances that characterize the work of similar men in other walks of life. Nothing will transpire as it should; supplies will be inadequate in one case and excessive in another; they will not reach the place where needed or when needed; delay instead of expedition will follow. All his plans will be disturbed by discordant jars, while in the hands of a capable man a happy conjunction of circumstances will attend everything that is done.

In early days railroads were built by companies organized for that purpose. In many cases, the work was farmed out to construction companies; many roads are still built in this way, but every company has its engineering department, charged with the immediate duty of looking after its construction work.

A large percentage of the mileage of railroads constructed each year is for extensions of existing lines and is built directly by the companies interested. Where this is so, the work is carried on with the same method and forethought that characterize ordinary repairs and renewals.

The construction of a railroad requires elaborate preparation in bringing together needed material. The work must be anticipated throughout. It is necessary that the official in charge should comprehend every emergency. The work will occupy his thoughts for months in advance; an adequate depot of supply must be arranged for storing needed material; he must ascertain the number and kind of ties required; the number of tons of rails; the supply of track fastenings and road appurtenances; the bridge timber needed; the building material necessary; ballast; buildings for the force; requirements for fuel sheds, water tanks, round houses, machine shops, store houses, stations, platforms, sidings, yards and other necessaries. It will also be necessary for him to estimate the force required to superintend the work and carry it on; the work to be done by contractors he will have to let. All these

things and many others must be looked after in advance, so that when the work is commenced it will go on uninterruptedly.

The celerity and smoothness with which construction work progresses under a competent supervisor seem to detract from the importance of his office. He appears superfluous; the property seems to grow of its own accord; the work looks simple to the observer. If, however, he is lacking in executive talent, industry and experience, his incompetency quite likely will make him so conspicuous that the ignorant will exclaim, "How indispensable this man; how fortunate his company; observe his untiring industry, his interest, his attention to details, his ubiquity!" Those who look beneath the surface will, however, detect his weakness. They will notice that under his management men are so crowded together as to impede each other; that they are poorly supplied; that they lack initiative and responsibility; that supplies are ill arranged and not located conveniently; that his estimates exceed wants in some cases and are deficient in others; that supplies are lacking at places where needed and at the time needed; that delays and embarrassments are frequent, and that while everything seems to be bustling with preconceived activity, the contrary is the case. All this influences cost unfavorably, but the fact is not generally known to the owners or executive. They have a bird's-eye view of the property after it is finished; a kaleidoscopic statement of

cost; the word of the supervisor—that is all. Their information may be true, so far as it goes. But it does not go far enough. However, the owner is primarily to blame for this. He can have what he wants. It is for him to decide. But his decision will vary according to his temperament and methods. One of the greatest capitalists in America has said that there is no necessity for keeping accounts in connection with the construction of railroads; all he wants to know is that the money goes into the work. But how can he, away from the property, know this? How judge of the fidelity, economy and wisdom exercised without an itemized statement of cost—without reviewing the expenditures?

The old-time method of judging of the intelligence and care used in constructing a road was generally defective; it was based largely on surmise; a belief in our fellow man, or a disbelief in him. We agree that the work has been honestly and skillfully performed, or the contrary; we look over the accounts; we analyze them; we listen to the story of the official in charge. This is not enough. If he has been deficient, it is impossible thus to discover it. Such is the potency of words when addressed to those already prepossessed, or who have no means of measuring their value, that the explanations of unfit men, instead of demonstrating their inefficiency, will, very likely, have the effect to build up confidence in them. We must have a better standard in business matters. What is it? In the case of railway

construction we may partially find it by careful classification of accounts; by full and complete statements. But this is not enough. It is only by a resurvey of the property that the object can be fully attained. Definite information can only thus be secured. A resurvey may not bring any money back into the treasury, but it will prove a source of future saving if existing methods and men are inadequate. If the work has been wisely and economically performed, it will demonstrate the fact.

The practice of resurveying railway property after the completion of the work is not usual. But it is as legitimate as enquiry in regard to the cost of a sidewalk or fence after completion. It cannot be distorted into a reflection on anyone. On the contrary, it will protect the official in charge if he has been reasonably efficient. If he has been merely fussy where he should have had foresight; if he has technical experience without sense; knowledge without discretion; age without wisdom; energy without judgment; or is lacking in honesty, a resurvey of his work will disclose the fact. Or, if not conclusively, will at least afford a good basis; a shrewd hint.

The construction work of railroads should be subjected to general rules of business. In their absence, the owner and executive are dependent wholly upon their estimate of men's character; on man's skill and inherent honesty; on his ability to guess correctly. This is a very unsatisfactory and unsafe basis. Absence of precautionary

measures, careful checks and balances, makes men unfaithful; makes them dishonest; makes them inefficient. I do not speak from personal experience, but from general knowledge. I do not recollect to have known of any improper practices connected with the construction of railroads. What I have to say is general; abstract; the application of methods recognized and practiced by men in private business. They are not new discoveries, but well recognized.

Generally speaking, railway construction must be more carefully looked after in new and imperfect organizations than elsewhere. The subject is an interesting one and becoming well understood by the proprietors and managers of railroads. I cannot attempt to discuss the specific measures that should be adopted. Elsewhere, however, I refer to particular methods and practices in connection with the construction of railroads that, if followed, will greatly aid and strengthen the efforts of those who are interested in securing efficiency and responsibility.*

As I have intimated elsewhere, the duties of officers of corresponding titles vary on different railroads, so that in describing the duties of the general manager on one railroad we may, perhaps, be describing the duties, or portions thereof,

* Namely, in the chapter herein on the Chief Engineer, and in the books "Constructing, Financing and Maintaining," and "Disbursements of Railways." It is also referred to in "Economic Theory of Rates."

of several officers on other roads. Nor is it probable that the operating department of any two companies is the same; but while the organization of one company may not tally with that of another, any more than the duties of officers, nevertheless all afford interesting and instructive examples. For this reason I may be excused for submitting the following imperfect account of the organization of the operating department of one particular road. In its methods all departments are merged under the president, but further than this they are distinct. They are classified as follows: Operating, traffic, accounting, law, tax and land.

To particularize: the operating department is under the general manager. He has immediate supervision over all matters pertaining to contracts and agreements of the operating department, their negotiation and performance; the occupancy and use of the company's property by corporations, firms or individuals (except its use under formal warehouse lease, which is handled by the land department); the opening of public highways and streets over the company's land; the construction of drains, sewers, waterpipes, telephone, telegraph and electric light wires across the company's property or tracks; the construction of crossings by steam and electric railways; free or reduced rates of transportation for employes of foreign lines, or other persons, over the company's lines; the general business connected with the post-office department and

the handling of the United States mails; the construction, or rumored construction, of lines of railway by other companies affecting the company; the standard of construction for motive power and car equipment; the improvement of the company's shop practice, tools and machinery; the promotion of the company's traffic, so far as the same pertains to the operating department; the general management and policy of the company, so far as they affect the operating department.

The general superintendent, who is immediately subordinate to the general manager, has direct supervision over the maintenance and repair of the roadway and track, telegraph lines, bridges, buildings and other structures, and the forces thereon; the standard to be used in the maintenance and repair of the roadway and track, bridges, buildings and other structures; plans for the maintenance, repair and improvement of the company's plant; the construction of tracks to serve new or existing industries; the execution of all maintenance and repair work; free transportation for employes and their families over the company's lines; the execution of such construction work as may be assigned to him by the general manager; the maintenance and repair of the motive power and rolling stock; the operation of water stations and coal sheds.

The assistant general superintendent, who is immediately subordinate to the general superintendent, has direct supervision over the station,

train and yard service and the employes thereof; the transportation and handling of passengers, freight, mail and express; the distribution and handling of the freight and passenger equipment; the handling and dispatching of trains; the care and cleaning of passenger equipment; time schedules.

Finally, the general superintendent has direct supervision over the division superintendents. These are in turn followed by train despatchers, agents, yardmasters and others immediately in charge of the property. The division superintendents not only have charge of the trains, station and track service, but of the local master mechanics and other officials in charge of the shops and motive power.

It will be noticed in connection with this organization, that the civil engineer, so prominent upon many lines in connection with construction work and the renewal and maintenance of property, does not appear in charge of a distinct department. The reason is that he works in conjunction with and subordinate to the chief operating officers. While there is a civil engineer, with a well-appointed office and assistants overlooking the various divisions, these assistants are, in a certain sense, subordinate to the division superintendents, just as the chief engineer is, in a measure, subordinate to the general superintendent; but while the civil engineer's office does not constitute a department, the importance of the work and the skill required

of those in charge make it practically so. It is constantly consulted by the president and other executive and managing officers. Upon many railroads the engineering department is not only not subordinate to the operating department, but outranks it. Matters of this kind are affected by old practices, and the ability, experience and aggressiveness of those in charge, just as the status of men and things is similarly affected the world over.

The somewhat obscure and inconsequential reference in the organization of railroads, described above, to the machinery and equipment department will be noticed. The great importance of this branch of the service grows in the estimation of railway owners and managers every day, so that from being a mere appendage (and one very much neglected at that) of inconsequential divisions of the service, the machinery and equipment department is more and more attracting to its service the best talent of the country; talent not only interested in the work, but especially educated, by study, experience and observation, to carry it on effectively. Every day adds to the importance of the subject. This feeling is one designed to increase rather than diminish, but as I refer to it quite fully in other places in this work, I will not mention it further here.

CHAPTER XIII.

THE SECRETARY AND HIS DUTIES.

It is the duty of this officer to anticipate the wants of directors and stockholders at their meetings, and to facilitate a clear understanding of the business that comes before them. He is the trusted and confidential agent of the directors, and attends upon their meetings for the purpose of recording the proceedings and affording such clerical information and assistance as his wide knowledge of the internal affairs of the organization renders possible. The particulars of all meetings of directors and stockholders are spread upon the books of his office, of which he is the custodian.

The office of secretary requires peculiar talent and facility of execution in the delicate matters that appertain to the financial and clerical transactions of a company. His familiarity with the confidential policy of the board makes his position one of the utmost delicacy, and so wisely is he selected and so discreet are his methods that he is impenetrable to the wiles of gossip. His books, like himself, are marvels of perspicuity and reticence. While recording every essential fact, they contain no hint of the innumerable petty incidents which attend the deliberations of

directors and which surround the measures proposed by them; they simply tell us that such and such a measure was passed, and, perhaps, that such and such directors voted for or against it. Here they stop. The skirmishing and dalliance are unnoticed; the secret caucusing held in remote angles of dark and gloomy corridors; the cautiously guarded discussions carried on in half concealed windows; the modifications to which the measure was subjected, in the informal chat of directors; the confidential murmurs which passed between particular members during the meeting; the action of that mysterious and formidable man, the chairman, sitting at the head of the room, silent and observant; the sagacious nod of recognition indulged in by one particular person, and answered by the raised eyebrows and protruding lips of a neighbor across the way; the bursts of temper and hot denunciation of one director; the lazy indifference of another; the attention paid to his necktie and boots by a third; the silence and look of determined resolve that shone in the face of a fourth; the preternatural attentiveness of a fifth; the sharp, ringing cry, "I second it," of a sixth—about all these interesting details, so much dearer to us than the dry minutiæ of business, the discreet secretary is silent—silent as the gloomy books, worn with usage and musty with the dampness of years, over which he spends so much time.

While he pores over these old tomes, pregnant with so much that is valuable to the company,

he is preoccupied, oftentimes abstracted. His thoughts are busy with the directors far away. He loves them and believes in them. They are all important to him. The courtier who dwells in the presence of the king and amid the splendors that evince his power feels but a feeble interest in those who pursue life in a colder atmosphere. Warmed by the rays of the throne, he thinks but idly of the half starved fires that glimmer in less favored places.

The weaknesses of the secretary attach us to him. He is a human, kindred spirit after all, like ourselves. To him the board is the guiding star—the luminous power that lights up the sombre recesses of life. The cold affability we notice in him at other times is observable throughout society. The lesser gives place to the greater. We clothe ourselves in the garb of others and bask in the sunlight of their favor. It does not matter how the distinction arises so that it is reflected in us.

In England, when railway companies were in their swaddling clothes, the secretary was the most considerable official in their service. Various circumstances conspired to this. The knowledge he had was both technical and definite. He differed from his fellows whose knowledge was not definite. All the details of railway organization, including the laws applicable to the same, were familiar to him. Companies sprung into existence under his immediate eye. He perfected their affairs and gave them direction.

No one else comprehended the intricacies of method and procedure that attended the inception and working of corporate bodies. This information, of paramount importance to directors, gave him a shadowy prestige that was denied his fellows, whose labors were isolated and comparatively unknown. The power of the secretary was great; his orders were scrupulously obeyed; his slightest suggestions were listened to with rapt attention. He was thought to possess the secret of wealth. The joint stock companies that sprung up on every hand, and that enriched all who participated in them, he alone fully understood; but the basis of his power was, after all, a species of knowledge easily acquired. It did not outlast the superstition that gave it birth. With the increase of joint stock companies and the publicity that attended the organization and conduct of their business, the knowledge of details, before known only to the secretary, became general. This diffusion was fatal to his power, and from a person of influence and discretion he became simply a servitor like his fellow officers. In reciting the history of the English secretary, we recount that of his cousin in the United States. The English secretary, however, still retains a nominal control over the accounts, but in the United States this distinction, if it may be called a distinction, is, except in isolated cases, not allowed him, such matters having been especially delegated to a particular officer technically familiar with such matters.

The duties of secretary relate to the convenience of the board and to the fulfillment of the legal obligations necessary to preserve the life and prerogatives of a company. It is his duty to prepare and cause to be published the notices of meetings of stockholders that the laws of the country and the regulations of the companies require.* The notice that is sent to directors of board and committee meetings is sent by him. The preliminaries that these meetings render necessary also devolve upon him; the minutes of the preceding meeting must be ready at hand for use; other records must also be available for reference, if desired; he must bear in remembrance the business left unfinished at the last meeting; the data the meeting is likely to require he must have at hand. The reports of committees and officers, also communications to the directors, he presents. The resolutions of a formal nature that characterize, to a greater or less extent, all meetings of stockholders or directors, he has ready to be offered at the opportune moment. He also interests himself in the ballots that are to be cast by stockholders, especially those that have official sanction. It is his duty to furnish the tellers, or persons in charge of the polls at the meetings

* "Notice of the time and place of meeting (of stockholders), signed by the President or Secretary, shall be published in two of the daily newspapers of the city of Chicago, and in one of the daily papers published in the city of New York, and the cities of Rockford and Galena in the State of Illinois, at least thirty days previous to the day of meeting."—*By-laws, Galena & Chicago Union Railroad Company, 1859.*

of the stockholders, with an alphabetical list of persons entitled to vote. The books in which the records of bonds and capital stock are kept are under his charge, and no share of stock or registered bond is permitted to be transferred unless duly authorized. Every bond or certificate of stock taken up in lieu of one issued, he examines to see that it is properly cancelled. It frequently happens that the transfer of stocks and bonds is conducted under the direction of some banking house or other fiscal institution; in such cases the duties of the secretary are greatly lessened. He has, however, still to sign the company's bonds and certificates of capital stock.

The secretary is required to keep the addresses of directors and bondholders, and, so far as possible, of stockholders of the company, so that communication may be had with them when occasion requires. As the period for the annual election approaches, we frequently find him in communication with the proprietors, requesting the proxies of such as are inclined that way.

The secretary is entrusted with the care of the corporate seal of the company, and his signature, in conjunction therewith, is necessary to give legal form to bonds and other formal documents. All coupons attached to bonds have also to be authenticated by him or by the treasurer. All leases and important contracts and agreements bear his attestation; and in reference to this last rule there should be no exception. The necessity that he should attest such papers serves to bring

them before him. This is very important, as the records of his office (or of some other equally important office) should contain careful transcripts of such papers. Whenever they relate, no matter how remotely, to the business of any other department, it should be the custodian's duty to furnish a copy or digest thereof, without delay, to the official interested. He should do the same with resolutions of the board and its committees.

The number of leases, contracts and agreements in force upon a railroad is so great that the accurate knowledge which the secretary possesses of them makes his services more and more valuable each year. Ultimately he becomes a veritable storehouse of information; but this fact should not encourage him to omit systematically to register and index his books of record, so that, in the event of his retirement, no trouble would be encountered by his successor or loss incurred by the company. When these precautions are neglected, great embarrassment and possible losses ensue.

While the secretary is the proper custodian of the legal documents of the company, it should be his duty, as already intimated, to keep his brother officers advised of such matters as belong to the departments over which they preside. He must be careful that his desire to make himself useful does not lead him to confuse and mystify his office. The secretary, like the tutor of Louis XIV. should strive by the efficiency and the heartiness of his service to make himself *useless* to those he serves.

The duration and value of his service will be greatly prolonged thereby.

Officers of railways cannot learn too early that no man should be necessary to a company. Delusions upon this subject are frequent, and oftentimes unfortunate. There are moments, without doubt, in the life of almost every officer of prominence, when he may be said to be of especial and great value, but such periods are rare. The expectant aspirants outside the charmed circle, who jostle and crowd each other in their strife for place and power, may always be depended upon to furnish a man equal to every emergency. The official who to-day fills every eye will, the week after his retirement, be scarcely mentioned, and in a few years will be forgotten. Such is fame. While an officer may, by honest and intelligent service, make himself of great value, he can never hope to become so important a factor that his loss will be seriously anticipated or long noticed after it occurs, provided the service of which he is a part is properly organized. If not rightly organized, he may for a brief period enjoy among business men a notoriety kindred to that of the youth who fired the Ephesian dome.

The secretary of a company is one of the natural guardians of its property, and his character and accomplishments should be such as to fit him for this office. While many of his duties are purely clerical, his familiarity with the affairs of the corporation makes him the custodian of

knowledge that is of great value and usefulness. This may be made to bear fruit, or may lie dormant like seed in frozen ground. The duties and responsibilities of the secretary are necessarily limited, and his sources of information not so extended as many other officers. But so far as they go they should be developed and utilized to the utmost. The office requires to be filled by a self-respecting and enlightened man, with accomplishments and ambitions far above those of a base or mechanical nature. When this is not the case, a company loses the aid of one of its most beneficent agents.

CHAPTER XIV.

THE TREASURER AND HIS DUTIES.

The duties of this officer are rarely the same with any two companies. Upon him devolves the supervision of financial affairs. He is the custodian of the funds, assets and collaterals. To him belongs, either actively or constructively, the labor of collecting the revenue.

This last-named work is not relatively the same with different corporations; it is increased or diminished according to the faithfulness, intelligence and zeal of agents and the efficiency of the system of accounting. If circumstances are favorable, a company will not suffer material loss in this direction. If not favorable, it will.

The treasurer has also charge of disbursements. The labor attending this is largely dependent upon the financial ability of a company. If it is so happily situated as to possess a generous surplus, the work is simplified and lessened. This happy conjunction is not, however, so frequent as could be wished. There are so many demands for money upon a railroad that it is difficult to husband it. Moreover, a large amount of every company's income is not available. It consists of earnings in course of collection and transmission; moneys invested in supplies or temporarily

locked up in other ways. The amount thus outstanding varies with the extent of a road and the nature of its business. Upon many lines it will comprise a very considerable portion of the gross monthly receipts. Proper consideration is frequently not given this fact by anyone except the treasurer. In the declaration of dividends the total net income is sometimes apportioned without reference to the cash on hand. The property has earned it and the owners are entitled to it. There is nothing wrong in the transaction in the abstract. But, while the company may have earned the dividend, the money is not in its possession. Money will come in, perhaps, within thirty days; but meanwhile other exigencies arise. This discrepancy between the net income of a company and the cash on hand is one of the many sources of embarrassment to the treasurer.

In addition to the large amount of outstanding receipts just described, the treasury is called upon daily and hourly to make disbursements from earnings that are not properly chargeable to income. Every cent so expended lessens ability to meet obligations due to bond and stockholders.

As a rule the money used in purchasing material is taken from current receipts. Miscellaneous assets are acquired in the same way. Many construction expenditures are also thus provided for; new equipment is purchased; buildings erected; side tracks laid; bridges built; spurs extended;

telegraph lines strung; tunnels bored; viaducts erected; hills cut through; cuts deepened and widened; embankments heightened and strengthened; and a thousand other things done to better the property. Such expenditures are common upon every road, but are more common upon new and poor lines than upon those better able to pay for them. No single expenditure for construction would, as a rule, greatly embarrass a company to provide for out of net revenue, but taken as a whole the amount is so large that the burden is a heavy one.

When entirely new lines are to be constructed or any great expenditure made for bettering the property, provision is usually made in advance for the money. But this is rarely done in the case of petty additions and improvements in America, though it is common in Europe. I do not criticise the practice. The fact that it is systematically practiced by the owners and managers of our railways justifies the custom and proves it to be for the best.

It has been the settled policy of American railways to expend a certain amount of revenue each year in improving their properties. It originated in the necessity owners felt for strengthening their interests—a necessity that no one will question who is familiar with railway history in the United States. Such expenditures, however, should be carefully considered. They are at best forced loans, from stockholders, and should not be pursued further than will redound

ultimately to their good. But, aside from these expenditures, every company should have a strong working fund equal to the sum of uncollected receipts and other necessary working capital. Such a fund is necessary to the safety of a company and will enable it to economize in many ways that are impossible under different circumstances. The trite maxim, "Pay as you go," applies with as much truth to corporations as to individuals. A corporation that cannot do this is embarrassed in many ways; it must pay higher for its supplies than it otherwise would, and is not able to avail itself of many favorable opportunities for advancing its interests in other directions. It should, therefore, seek at all times to maintain a strong cash balance and should in every case provide means in advance of its needs. By such expedient the payment of interest obligations, dividends, expenditures for improvements, etc., becomes comparatively easy.

The routine work of the treasurer requires of him familiarity with the practices of bankers and commercial men generally. He must be familiar with the making and using of notes, drafts, checks, bills of exchange, bonds, stocks, and kindred instruments. This information is to be acquired by practical experience—it is not to be learned from books, though the latter may assist him. The treasurer must not only possess technical knowledge, but he must have a good knowledge of the property, so that he may act advisedly.

It sometimes occurs that the receipts of a company are not sufficient to meet its current obligations, but require to be anticipated by weeks, perhaps months. This is the case when expenditures precede earnings collections. In such cases, if the treasurer is not fully advised, or is not an adept in expedients, his company will suffer greatly from his deficiencies. The office of treasurer of a poor or improvident company is an exceedingly irksome one. The necessities of his position compel him to resort to every admissible subterfuge and place him in many instances in a position where he must accept affronts with cheerfulness and resignation.

The position of treasurer of a company that cannot pay its debts promptly is a peculiarly hard one. The public in many cases will ascribe his dilatoriness to personal contumacy or neglect of duty. These erroneous impressions cannot be corrected without injury to the credit of the company; he consequently encourages them. Compelled to ask credit in the most trivial cases, he lingers reluctantly over the settlement of every claim. When accounts have run their allotted period, he lengthens their life by renewals in a different shape. Thus, a book account, when due, he supplements by note or acceptance. This is considered permissible; an open account, he construes, may be extended without sensible loss of credit; a note or acceptance cannot. The distinction is very nice—hardly perceptible. Nevertheless he avails himself of it. The commercial

world agrees in looking upon the renewal of a note or acceptance by a railroad company as an indication of mismanagement or the forerunner of bankruptcy. For this reason a treasurer who values his reputation or the credit of the institution he serves will not contemplate such action except in cases of extreme emergency. He will, on the contrary, strive to draw the original instrument with such wholesome margin that when due it can be paid without thought or suggestion of extension.

The duty of making provision for interest on bonds and dividends falls naturally upon the treasurer. Upon him also rests the responsibility of surrounding these payments with necessary safeguards. The sinking funds have also to be looked after by the treasurer, and as they are frequently payable in bonds, he must in such cases go into the market and make the necessary purchases. The duties of the treasurer require him, in conjunction with the board of directors or the president, to negotiate all loans, whether of a temporary or permanent character, that the affairs of the company render necessary. The difficulties surrounding this labor are apparent. Sales of securities are also conducted by him. When cash accumulations will permit, it is his business to loan the surplus when it can be done without risk. The performance of duties of this nature, it is apparent, requires an extended knowledge of financial affairs and a sound discretion.

The collection of revenue arising from transportation, the sale of supplies, and other sources, is at once arduous and perplexing. All the receipts of a company require to be followed with painstaking pertinacity throughout the ramifications of the service until the cash finally reaches the treasury. Every avenue has to be guarded. The performance of this important service necessitates the possession by the treasurer of definite knowledge of specific information. This requires that he should at all times have access to the books and accounts of the company. To facilitate this, it is thought necessary by many companies that the accounts should center in him, or be directly tributary to his office. The prominence of the treasurer as the nominal custodian of the company's purse strings, gives him a power and a prestige not possessed by any other officer of equal rank; he is thought, because of this, by many companies to be in a position to exercise a pressure in behalf of faithful accounting that cannot be secured elsewhere. Without the information afforded him by the accounts, his supervision over receipts and expenditures is greatly restricted; he has no assurance that receipts are not delayed or alienated, or that payments are *bona fide*. However, any information he may lack in this respect will be possessed by the accounting officer, who is, in the main, quite as faithful and skillful as he.

Upon many American railroads the accounting officer is entrusted with the duty of collecting

the revenue. It is his office to see that the accounts of agents and others are properly kept and the money turned over to the treasurer. He is thus the coadjutor of the latter. This blending of duties, as may be readily supposed, is frequently the occasion of more or less annoyance to both officers. Whenever authority is exercised by two or more officers, and its limitations are not accurately defined, it occasions conflict and embarrasses the service, and, in the case of financial officers, results in loss. The duty of collecting receipts should be entrusted to a particular person; the moment responsibility is divided, it is lost or greatly weakened. Men will not act energetically when their duty is not clearly apparent. Either the treasurer or accountant should be held wholly responsible for collections. The duty cannot be safely divided.

The treasurer is the natural custodian of the securities of the company, among others of those deposited by agents for the faithful fulfillment of duty. The vicissitudes of business require that these should be carefully scrutinized by him at short intervals.

The conduct of the treasury department is attended with many incidents that test the forbearance of the treasurer. Thus it is his duty to pay coupons as they become due and are presented for redemption. It sometimes occurs that these are lost by owners, or representations to that effect are made. In such cases, payment is manifestly impossible without adequate protec-

tion. Nevertheless, claimants will persist that other security than their word is unnecessary. Again, stockholders who have, through ignorance or neglect, allowed their certificates to stand in the names of former owners, will claim the proceeds of dividends without feeling it incumbent upon them to establish the authenticity of their statements. The treasurer is also harassed more or less by the presentation of spurious stocks and bonds brought to him by innocent holders. Like all fiscal agents, he is extremely conscientious, and, because of this, dwells amidst constant alarms, lest some mishap befall the interests entrusted to his care. The petty vexations that beset him cannot be recapitulated; they are such as harass every man entrusted with the custody of money.

The calls upon the treasurer for money, as already intimated, oftentimes take no account of his ability to pay. Thus when engaged in providing for the pay roll, and when every resource is strained, settlement is demanded for people who have been injured or killed; for losses, damages, legal services, doctors' bills, coroners' fees, overcharges, taxes, supplies, and the thousand and one things that beset a railroad company. Each department, ignorant of the wants of others or esteeming their own particular needs imperative, resents as harmful any delay in the payment of its bills. However, the conservatism of the treasurer and his rectitude of purpose enable him to withstand these assaults.

In his efforts to collect the company's debts, the treasurer meets with continual obstructions; thus, debtors prolong the life of their accounts by avoidance of his agents, by sequestrating their property, by disputes over the amount, by the intervention of receivers, or the injunctions of courts. On the other hand, the patrons of the company everywhere clamor for an extension of time. In every direction all the multitudinous devices familiar to the impecunious are brought into play to harass him.

Good judgment and extended knowledge of affairs are of great value to the treasurer. He is particular in receiving and disbursing money. He will not receive it himself, nor permit others to receive it, without giving a formal receipt, specific both as regards character and date. He will not pay out money unless duly authorized. He also watches continually to see that the records of his office are complete, and their connection and sense so clear that a dullard may unravel them long after he is dead.

The treasurer's daily life, while on the whole easy going, is filled to the full with sprightly incidents. Thus, impecunious operatives waylay him in out of the way places for wages not yet earned; constables lie in wait to serve notice of garnishment upon him; claims already paid reappear through inadvertence; mendicants haunt his footsteps; imposters claim his aid; the agents of eleemosynary institutions approach his office

as they would a shrine; boarding house keepers, shrunken tradesmen, horny-handed washerwomen and worn and frowsy men importune him by day and by night, to save them from the loss of petty credits they have unwisely extended irresponsible employes. More serious than these, unscrupulous and desperate men seek an occasion to blackmail him, or failing, to blast his character; the base try to corrupt him openly; the politic seek the same end in a more round-about way. In his business the over zealous among his subordinates keep him disturbed night and day with tales of suppositious collusion and theft. Like a prosecuting attorney, he is made the unhappy receptacle of every attempt, open or covert, to defraud his company. Thus his faith in man's integrity grows less and less each day, until in the end he is inclined to believe only what he himself sees and knows.

That the office of treasurer requires a person of unimpeachable honesty goes without saying. It requires more. It requires that he should be a man of broad and comprehensive views, understanding the company's interests, and firm in protecting them. The office is not a clerical one, and should not be made so. The treasurer is one of the natural trustees of a property to whom owners must look to conserve certain valuable interests. The performance of his duties requires their countenance and support. In no other way can he enforce the proper functions of his office. This

enforcement, it may be said in passing, is of much greater importance to them than to him.

NOTE.—The foregoing gives an outline merely of the functions of a railway treasurer. For a more complete understanding of his jurisdiction and for information as to details of his duties and methods adopted in performing them, the reader is referred to the books "Principles Governing Collection of Revenue," "Fiscal Duties of Agents and Conductors," "General Fiscal Affairs," "Disbursements of Railways," etc.

CHAPTER XV.

THE DIVISION SUPERINTENDENT AND HIS DUTIES.

The measure of this officer's duty is dependent upon the extent of the division over which he has supervision; its peculiar topographical features; the facilities he has for maintaining it; its business and the appliances for conducting the latter. The discretion allowed him is dependent upon his experience, ability and tact, and the disposition of his superior officer. He is the representative of the general manager and is immediately in charge of the property.

The supervision the division superintendent exercises over employes is qualified by the authority and needs of other departments. It is general, however. His authority over station, train and track forces is absolute, because of the necessity of harmony and co-operation in the conduct of business, more particularly the running of trains. In many instances he has entire charge of the property, including the track and other structures. In other cases he shares this duty with the civil engineer. His authority, however, is paramount in all things necessary to secure unity of purpose and celerity of action in the handling of traffic.

The office of division superintendent presupposes the existence of a property so extended as to preclude personal supervision by the general manager. The division superintendent occupies the same relation to the general manager that a corps commander does to the general of an army. His policy is directed from headquarters and all his acts are subject to revision. He arranges the schedules by which trains are run. When accidents occur on the line or business can be expedited thereby, he has recourse to the telegraph.* He has a clear head, retentive memory, perfect knowledge of the geography of the road, including the extent of its grades, the location of its telegraph offices and the capacity of its sidings. When moving trains by telegraphic order, their number, position and character are accurately kept in mind by him, also the quality of the engines that haul them, the state of the weather, the direction of the wind and the capacity of the enginemen and other train employes.

While the division superintendent has charge of the employes along the line, agents and conductors are also subject to direction by other officers in their respective departments. But as a rule a superintendent alone appoints. He also discharges. If an employe is dishonest, or if other occasion arises for his dismissal, the division superintendent generally gives the order. The

* In summing up the duties of the superintendent, I of course sum up the duties of his immediate staff, the train dispatcher, etc.

duty is not an agreeable one, and is not always performed with the promptness it should be. Employes who are unfit in other departments may be especially desirable to the superintendent. Moreover, the latter is oftentimes extremely tenacious of the prerogatives of his office, and not unfrequently resents any suggestions in regard to their exercise in matters of a co-operative nature. When this is so, it greatly embarrasses department officers and complicates the handling of the business and revenue, and in many instances endangers both. The discretion of the division superintendent should not extend beyond the appointment of unexceptionable men and the retention of those who are worthy of trust by all departments of the service.

Employes engaged in the manipulation of trains are usually subordinate to the division superintendent, inefficiency or neglect of duty being punished with dismissal, suspension, or reduction in rank or pay. Care is, however, used to avoid injustice. The train force constitutes an indispensable ingredient of the service, and is made to feel in every proper way the high estimation in which it is held, and the desire there is to promote its interests.

Engineers, firemen, and other employes occupied about the locomotive, are usually under the direction of the division master mechanics;* the

* See reference made to the master mechanic in the chapter, "The Chief or General Manager and His Duties," in this volume; also book on "Railway Equipment," etc.

latter are oftentimes, nominally at least, under the direction of the division superintendent. This in such cases is thought necessary to secure unity of purpose.

The duties of the division superintendent compel him to keep himself informed as to the condition, whereabouts and capacity of the rolling stock. He must be familiar with the number, character and availability of locomotives, the number and location of empty cars, how many loaded cars are waiting to be moved and the number in transit. He must also watch the volume of business, carefully noting its source and direction, so that he can exercise a wise supervision over the force, cutting it down when trade diminishes and answering quickly any demand for its increase. He must also keep himself advised of the requirements of his division in other directions, distinguishing between those things which are necessary and those which are largely the creatures of sentiment. He finds everywhere a disposition to increase the number and wages of men and an indisposition to decrease either. This does not arise from lack of interest, but from over zeal.

The duties of the division superintendent are such as to school him to command men with wisdom and sobriety, and the most effective managers are those who have served faithfully as superintendents. Men from any other position when called to the management rarely succeed in comprehending the physical wants of a company.

Moreover, the experience of the division superintendent inclines him to trust his subordinates, and when called to the management he is disposed to let the officers of the various departments perform the functions that appertain to their offices. If he meddles, it is unfrequently and over material questions. As a manager he occupies himself with important duties and those naturally belonging to his office.* The forbearance of the general manager of a railroad is not easy, however. He is continually tempted to interfere. There is in the community a large class of people who do business with railroads who pride themselves upon their tact—upon knowing how everything should be done in order to secure the object they seek. When one of these people has business to transact he does not go to the head of the department interested, but directly to the chief managing officer. This attention tickles the vanity of the latter and, if his capacity is not high, instantly warms his egotism into life. His dignity will not suffer him to politely refer the petitioner to the proper officer. No. He ignores him. Fatal omission. The neglect shocks the self-respect of the officer

*The division superintendent is compelled to trust the agents, conductors, track foremen, and other employes along the line. He cannot personally superintend their work. He must trust them. The habit thus becomes natural to him. He not only learns to trust men, but to educate them to be fit to be trusted. When he comes to the general management, therefore, he has already acquired an indispensable requisite of the office, namely, ability to trust men; to forbear from meddling with them unnecessarily.

concerned and inclines him more and more to regard his office as merely an automatic one. The evil is one of organization and suggests more careful respect for duty and responsibility.

Personal government always starts out with the intention of being fair; of selecting for its agents men faithful and skilled. But instead of permitting the men chosen to conduct the work entrusted to them, it more and more interferes with hasty and ill-advised action. This interference does not arise so much from a want of respect for others, as from inability to understand the bad effect of such interference. Arbitrary interference where co-operative effort is required is more far reaching than the act itself. It destroys *esprit de corps;* men cease to create; they become simply receptacles of the ideas of others—of the person who interferes. Such limitation is fatal to a corporation.

In general he who most scrupulously respects the rights and judgment of others, who judges most dispassionately, who respects as far as possible each and every person in his place, who endeavors to make each and every one feel that his judgment and discretion are highly esteemed, makes the best governor, not only of private corporations, but of political institutions.

From the foregoing, it will be seen that the duty of building up the service of a road falls very largely upon the division superintendent. If he is a wise and discreet officer, continued improvement of the service will result, the

gradual promotion of competent men and the gradual elimination of poor men will follow. In order to maintain the affection and interest of employes, he will be careful to base promotions on fitness, and so far as practicable, priority of service; to remove only for cause. Without specific instructions or the formal introduction, perhaps, of civil service rules, he will still rigidly enforce them. Men who come into the service will begin at the bottom and, as they acquire knowledge and facility and evince fitness, will, as occasion offers, be promoted. Thus the service will be bettered continually, not only through increased experience, but through increased interest in the work and love of the employer.

In the agreeable and honorable duty of building up the service, the superintendent will not trust to chance, but will institute such rules and regulations as will secure recognition of merit and prevent injustice being done. In this particular field the civil service of all corporations requires constant attention.

The civil service of railroads, like the civil service of governments, requires to be established upon a fixed basis. The injury that corporations may sustain from an imperfectly organized service will not arise so much from acts of injustice, as from the uncertainty that attends its operations; from a belief upon the part of everyone that their position is not dependent upon fitness and fidelity wholly, but upon the will of some particular man.

Where the way is left open by which injustice may be done to a man or body of men, the effect is, in many respects, the same as if the injustice were actually committed. Herein the organization of public and private corporations is more or less weak all the world over. Time is necessary to cure the evil. Acts of injustice and oppression are not frequent upon railroads. Far from it. But the knowledge that they are not impossible makes every man feel unsafe, from the highest to the lowest. Until this feeling is wholly removed—until this apprehension is banished from the lives of those who serve corporations—the executive will lose greatly in the value of the service rendered by those under him. Of this there can be no doubt. One of the most conservative, faithful and intelligent railway officers I ever knew told me that though he had served a particular company over a quarter of a century, he never felt in the morning that he might not be dismissed before night; that he had never considered his position worth a day's purchase. It is impossible to conceive of anything more melancholy than this, and if the reader could know the man and the fidelity and talent that had characterized his service, and the high estimation in which he was held by his employers, he would appreciate it more heartily than from any description I can give. The officer in question was loyal, honest, faithful, experienced and capable; a man without an enemy in the world, and yet he had never felt

secure in his position for a moment! He had never been discharged. Such a thing had never been even remotely thought of. His fears were wholly groundless. But they had, nevertheless, disturbed him all his life, and had, without a doubt, lessened his usefulness, because of the feeling that the continuity of his service might at any moment be broken by unforeseen and arbitrary action. What this officer felt, every officer feels (where the service is not systematically organized), only in a more intense degree, because there are few who approach him in worth. Until this fear, this benumbing apprehension, is wholly eliminated from the lives of corporate officers, the service can never reach its maximum efficiency. If there are any who believe otherwise, it cannot be an answer on their part to say that the apprehension of the officer in question was purely fanciful, morbid, absurd. It was just as great and real as if based on continued acts of injustice round about him. It was based on the absence of a definite plan for insuring him justice under all circumstances. It was the uncertainty of the situation, not its actual probabilities, that unnerved him. No civil service in the world, it is probable, ever approached in efficiency and certainty of tenure that of railroads. Each year adds to this efficiency. Its defects are more imaginary than real; time and experience promise to perfect it in this regard. Ultimately, if not interfered with extraneously, the civil service of railroads promises to become as perfect as the ingenuity of man can make it.

The officer whom we know as the division superintendent is called in England the district superintendent. His duties are not noticeably different. An English officer* thus sketches the duties of the district superintendent:

"For administrative purposes the system is divided into sections or districts, each of which is under the control of an officer of tried and practical experience, termed the 'district superintendent,' having his offices at some central point, who is responsible for the train arrangements of his own district, the conduct of the traffic and the discipline of the staff. Each of these officers has under him an assistant and several traveling inspectors, who regularly visit every station and signal post, and investigate and report upon everything that is going on in the district; these men being, moreover, encouraged to make suggestions for the improved working of the trains and the avoidance of irregularities, any such suggestions always receiving careful consideration. In some of the less important districts the district superintendents are responsible for the goods (freight) work at the stations, as well as the conduct of the passenger traffic, and in that case they are answerable both to the chief goods manager and to the superintendent of the line; but in the more important districts, they are relieved of

* Colonel George Findlay.

the management of the goods business (except as to the working of the trains) by district officers of equal rank with themselves, who are called 'district goods managers,' and who are responsible to the chief goods manager. The same principle is followed out with regard to the management of the stations, at the majority of which a single agent is placed in charge of both the goods and the passenger traffic; at others there are two officials, one of whom, called the 'station master,' attends to the passenger work, and is accountable to the district superintendent, and the other, styled the 'goods agent,' is responsible for the goods working, and is under the control of the district goods manager. The chain of responsibility and supervision is a very complete one, and, in fact, the secret of organizing the management of a great service is nothing more than a carefully arranged system of devolution combined with watchful supervision. It is not, of course, practicable for the general manager to superintend in person the everyday actions of the porter or the signal man, but these latter act under the immediate direction of the station master, the station master is accountable to the district superintendent, the district superintendent to the superintendent of the line, the superintendent of the line to the general manager and the general manager to the chairman and directors. If anything goes wrong, or any mishap or irregularity occurs, each of these has to bear his own share of the responsibility in turn, and thus

all are kept on the alert, and each one has an interest in seeing that those subordinate to him are fit and capable in every way to discharge the duties placed upon them."*

The office of superintendent of division affords opportunities for learning the details of railway business and the fitness and peculiarities of railway men not to be found elsewhere. It is, as already stated, a fit stepping stone to the highest offices in the gift of a company.

NOTE.—For further reference in regard to the duties and responsibilities of the division superintendent, see books "Train Service," "Freight Business and Affairs," and "Passenger, Baggage and Mail Service."

*Colonel Findlay is describing the London & Northwestern Railway. On that line conferences of all the operating and traffic officers are held monthly at headquarters for the purpose of discussing the needs of the service. Periodical inspection trips are made over the line by the general officers, as in America.

CHAPTER XVI.

THE CHIEF ENGINEER AND HIS DUTIES.*

No other officer requires more preparatory training and skill to fit him for the efficient discharge of his duties than the civil engineer. For this reason and because of the great importance of his work and the ability and thorough mental training it necessitates, he deservedly ranks among the highest officials, and may justly aspire to the most exalted position in the gift of those he serves.

The civil engineer is usually a man of high mental attainments. Mild, reticent in his manner, modest about asserting himself, he loves his profession above everything else. Like all well educated and refined men, he possesses many of the tastes and habits of the student. He loves knowledge for its own sake. Too fine strung to cope with his more practical and aggressive neighbor, the operating officer, and lacking the prestige and power of the latter, he succumbed to him early in the struggle. His office, in consequence, lost much of its strength and usefulness.

In the early history of railroads the superintendent, for reasons not necessary now to discuss, contrived to restrict the authority of the

* For further reference in regard to this matter, see chapter in this book "The Chief or General Manager and His Duties."

civil engineer to a very limited field. He was willing to see him employed in making maps, examining doubtful questions of right of way, settling levels, staking out work and computing contracts. But further than this he would not tolerate. Thus, the engineer was prevented from entering on the more important field of duties which his profession enabled him to fill more effectively than anyone else.*

The functions of the civil engineer naturally relate to the maintenance of the roadway and other structures and the superintendence of new work. This is his congenial and proper field and he should control it, without interference or suggestion, except in so far as relates to the policy, resources and needs of the company. The chief engineer is peculiarly fitted to exercise supervision over the track and permanent structures of a company. His office, however, was for a long time rather advisory than practical. The definite knowledge he is able to bring to the discharge of his duties is indispensable, and makes his presence necessary upon every well managed road.

It is the general practice of railroads to entrust the civil engineer with the immediate supervision of all works in progress of a permanent character, such as the construction of new lines, extensions and branches, buildings, bridges, culverts, sidings and similar structures. His advice is especially

* John B. Jervis. The condition of affairs referred to no longer exists. The civil engineer more and more occupies each year his rightful position.

valuable in connection with the permanent way. In many cases roadmasters are subject to his orders concurrently with those of the division superintendent.

No one is so capable as the civil engineer to have charge of the track of a railroad, either as a supervisor or roadmaster. But he must have practical experience; must know the duties from having performed them. With such information supplementing his scientific knowledge no one can equal him in fitness and desirability. But book learning cannot take the place of experience. No one who has not actually worked upon the track understands its difficulties, its deficiencies, its possibilities, nor can they manage effectively those engaged in such work. Practical experience opens up avenues of information impossible to acquire in any other way, and makes the person who possesses it superior to all others.

The track appliances of railways have received the constant attention of the engineer since the first railroad was constructed. The evolution of the rail, with its support and fastenings, is both curious and instructive, and the great progress that has been made evinces the enlightened understanding and thoroughness of the engineer.*

* Illustrations tell the story better than words; these I am able to embody in the book, "Constructing, Financing and Maintaining." These illustrations afford a connected study in connection with what is said in that volume, of the various forms of rails that have been used, the different kinds of stone, wood and metal supports that have been tried from time to time, and the splices, chairs and fastenings that have been used in connection with the track of railroads.

The maps, charts and profiles of a company's property properly find lodgment in the civil engineer's office, and, in the absence of a land agent, he is usually the custodian of deeds and evidences of right of way.

The civil engineer is a man of esthetic taste. His ideas are altogether professional. He delights in parallelograms and in the art of the draughtsman, in tastefully executed maps and charts, in the profuse use of drawing paper and fine muslin, in expensive and permanent inks and silver plated ruling pens. He especially cherishes the implements peculiar to his office. He likes to have them of superb quality and polish and richly mounted withal.

While he delights in fathoming the calculations of students and philosophers, it is in the field that he displays his abilities to the best advantage. Here, in the open country, in the presence of his beloved instruments, surrounded by his companions and agents, he revels to the full in the glory of his profession. Neither rude fare, nor storm, nor obstacle, disturbs the equanimity of his temper; he meets them with the placid temper of a soldier and the pleasure of a man who delights in nature. No obstacle, whether it be mountain summit or cañon, wide river or bottomless morass, stays his course; all alike yield to his skill and patience.

It is the duty of the civil engineer to preserve the property of railroads from deterioration. To better it. He is especially concerned in

securing a smooth track and a well ballasted, adequately protected and well drained roadbed; also stable bridges and culverts. All other things are subordinate to these. He holds heavy locomotives and high speed to be undesirable, or, if indulged in, he would make the component parts of the track so strong and heavy as to take a bond of fate against the contingencies of accident or ordinary wear and tear. A scientifically educated engineer of many years' practical experience and observation—a man greatly distinguished in his time for the extent and value of his services*—was at the trouble in a work he published (now out of print) to define at considerable length the characteristics of civil engineers in connection with the construction and management of railroads. I cannot do better than repeat his words here:

"It is the engineer's business to study thoroughly the wants of the railway in regard to the track and its appurtenances, the effect of the action of machinery upon it, the kind of machinery that will produce the most economical transportation, and the most favorable arrangement for the stations, station buildings and shop accommodations. He should be the authorized adviser of the master machinist and track master, and superintend all contract work for renewals of bridges, culverts, buildings and machinery. By his connection with the track and machinery, he will be able to judge of the

* John B. Jervis.

effect of one on the other, and by general observation and carefully conducted experiments, will come to a more thorough understanding of the interests of the railway than will be likely to be reached in any other way. These views may fairly be urged on general principles; as a man who is educated to a particular business, whose time is devoted to a full understanding of its requirements, and who is stimulated by the consideration of professional reputation, is more likely to conduct affairs advantageously than one who picks up his ideas at random, and, though doing some things very well, will probably often fail in respect to others. Certainly, the important matter of maintaining the track and machinery of a railway should be committed to the most competent hands. I have known some very intelligent and excellent machinists, who have contributed largely to improvement in the arrangement and workmanship in this department (the machinery), to whom the public and the railway interest are greatly indebted. At the same time, I have rarely noticed in them any special concern as to the effect of their machines on the track. It has been the general practice to commit the care of machinery to the master machinist, and this is proper in all that relates to manipulation, and, to a large extent, to the plans of work; but, as before observed, this class of men rarely gives much attention to the influence of their machinery on the track; nor can this be expected, as they have no supervision of the

track. They regard the power of their machinery as the best and proper indication of their ability as machinists, and consider that the track should be able to bear it; and if it does not actually break down under the service of the train, the machinery is regarded as all right—draws large trains and runs at high speed. The machinist has no care and takes no note of those every-day expenses that are required to keep the track in adjustment. Then the track master has no charge of the machinery, and rarely realizes that it involves any question in relation to his duties, but goes on as best he may to make his track capable of sustaining the service. Thus, nothing can be more clear than that the track and machinery should be under the general supervision of the same man, who should be capable of comprehending not only the adaptation of one to the other, but the service of each in effecting the most economical transportation of the traffic to be provided for. To merely run trains is a thing that may be done with small experience. To run trains and manage the track and machinery so as to effect the most economical transport, is a very different thing, and as yet very imperfectly studied. I am well aware that a large proportion of railway superintendents will not concur in the views here advanced. In the duty of selecting an engineer for the responsible charge here recommended, it is necessary to exercise the same scrutiny, the same practical sagacity, that is called for in other departments of business.

Men may, and often do, bear the professional title of civil engineer, as well as of lawyer and physician, with very slender qualifications. It is not the mere scientific engineer, who may bewilder with hair spun and useless calculations, nor the practical engineer, who may be able to collect statistics, run levels, set pegs and stakes, copy drawings and make out estimates for contractors, if these be the end of his accomplishments, that is needed. For the object here proposed, the engineer should be familiar with mechanical principles—understand well the strength, durability and adaptation of materials; by experience, observation and study, should have a fund of practical information at command that may be available as occasion or emergency may require. It is, moreover, necessary for him to be a good business man, familiar with the varied interests of a railway, in which he will find ample scope for sound practical sense and experience in his dealings with both men and things. Not a man that is punctilious of his dignity, and unwilling to profit by a good hint from the most humble workman, but ready to rest his standing on his good sense—his frankness and uprightness in intercourse with others. Such a man will never have occasion to complain of a want of respect in his business intercourse. An engineer should be so completely content with his salary that his mind would be wholly devoted to the work placed under his charge, and his own happiness as much con-

cerned as that of the proprietors in obtaining a favorable result for the enterprise. Not less than for a lawyer, physician or merchant, an engineer, to succeed well, must enjoy his profession, and find his chief recreation in the cares, duties and results of his labors.* Having been mostly occupied in works of construction, engineers have not generally had time and opportunity for that close attention that is necessary to render them as useful as they should be in the maintenance of railways. Notwithstanding this deficiency must be admitted as of general application, it does not change the position of this question; for when they are placed in their proper position in the management, they are, from their professional training, experience and habits of careful study, more likely to succeed in perfecting this branch of the service than men who are not especially fitted by professional acquirement. Though there are exceptions, it is a general truth that it is expensive to learn a new occupation in mature manhood; and consequently the railway companies that commit their business to unskilled or uneducated men must be at the expense of educating them during their supervision of business, and while they are learning its arts and duties, meanwhile depending on advice, trusting to the guidance of others as they may chance to find out matters beyond their own powers of criticism."

*This is also true of all officers and employes of corporations. M. M. K.

In the dawn of railway enterprise the engineer was independent of, and in some cases superior to, the chief operating officer. He was not, however, able to maintain his independence or supremacy. Wherever he attempted to do so it had the effect to excite the active hostility of the operating manager (referred to by Mr. Jervis), who saw in the ability and accomplishments of his gifted brother officer a dangerous rival. Herein existed the reason of the slight respect paid the office of engineer.

In describing the peculiarities and duties of the civil engineer, much that is said applies with equal force to railway officials generally. Indeed, it is quite impossible to explain the duties and characteristics of any particular officer without describing peculiarities common to those of other branches of the service. This is so apparent as to render any attempt at separate idealization impossible. In order to understand the duties of one officer, we must study the duties of all. Mr. Jervis' suggestion (in the extract quoted) that the civil engineer should have supervision both over the physical property and the machinery of railroads, has not been generally acquiesced in. Whether this has arisen from untoward circumstances or because on the whole his training did not fit him to cope with the multitudinous details peculiar to the construction and working of locomotives, is impossible to say. Possibly both of these things have had their weight. The growth in experience of master mechanics and managers

since Mr. Jervis' time (1860) has very greatly supplemented the knowledge and capacity they possessed in his day, so that conditions have greatly changed. There can be no doubt, however, as to the value of the engineer's advice in matters pertaining to his office, and it is not probable that any wise railway manager now fails to avail himself of it to the utmost. Nothing can be truer than this, that the adjustment of motive power and permanent way must conform to each other. The most perfect harmony must exist between the weight and speed of the load and the character and strength of the track over which it passes.

What Mr. Jervis says in regard to the circumstances that should surround the civil engineer in order to enable him to make himself most useful to his employer, applies to railroad men generally. Their salary should not only be sufficient to provide for reasonable wants, but their position should be so secure as not to cause them anxiety so long as their work is creditably and faithfully performed. Mr. Jervis especially mentions the question of salary. But it is probable that the question of permanency of position is of much more importance in the economy of railroad operations than that of salary. Men easily adapt themselves to their income, whatever it may be, and do so cheerfully and happily so long as its permanency is assured. But when doubts attach, that moment they become uneasy, discontented and open to improper suggestion. There is but one remedy. It lies in the

enforcement of reasonable means of insuring permanency of position so long as men are faithful and qualified and there is need for their services.

In Mr. Jervis' time the duties of engineers were almost wholly concerned with the construction of new roads. His was especially an epoch of construction. Operating officers were learning their duties. They were inexperienced and their methods were rude and disconnected. We cannot wonder that we held them in more or less contempt. But all this is changed. A class of men has grown up as familiar with the best methods of railroad practice as doctors are with the peculiarities of disease, or lawyers are with the intricacies of legal practice. The civil engineer has not lagged in this progress, but has kept abreast of his colleagues. The class of labor, however, that at one time occupied his entire attention is now only a minor incident in his life. Instead of laying out and superintending the construction of railroads across the country, he is upon many lines devoted wholly to local improvements; to necessary additions and betterments of old properties; to placing new side-tracks, improving alignment, ballasting the track, bettering grades, rebuilding bridges, deepening and widening cuts, enlarging embankments, improving and extending buildings and adding new ones. These duties occupy his time and afford congenial employment for his peculiar skill. They are as necessary and valuable in the

economical management of railroads as the duties of superintendents and traffic managers.

The chief engineer excites our respect. We hope our children may see the time (if we do not) when men who occupy important positions on railroads may come into the service equally well equipped. This means the establishment of colleges and universities where the principles that govern the administration of corporations are taught and the peculiar methods and appliances of railways are carefully and exhaustively studied.*

The civil engineer is required not only to possess the rudimentary knowledge his office renders necessary, but he must, like other men, keep himself advised of the advances and improvements going on about him, so that he may piece out his intelligence and experience by that of others. His department of industry, like that of his associates, is in a state of transition.

The art of the civil engineer, with heightened civilization and multiplied appliances, takes on each day new features. Innumerable specialists have been added to the service. The civil engineer no longer looks after the whole structure. We have engineers devoted to electrical appliances, drainage, gas, surveying, location of highways, construction of bridges and the building and maintenance of railways. This division of labor will go on increasing instead of diminishing.

* Reference to the civil engineer is also made in the book on "Constructing, Financing and Maintaining."

The old-time engineer who looked after everything will no more be known than the old-fashioned doctor.

The profession of engineering elicits the interest and stimulates the ambition of aspiring men. The uncertainty, however, of steady employment and the scant hope held out of permanent and profitable patronage have kept its ranks thinned. These drawbacks, it is likely, will decrease, at least in this country. The civil engineer in America is more and more assuming the position that his education entitles him to. This position has always been accorded him in older countries. The various avenues through which access is attained to the position of civil engineer are too numerous to recapitulate here. Many who start out fall by the wayside, discouraged. Their time, however, is not lost. They are benefited. No one can tell in advance the degree of success that those who aspire to be civil engineers will attain. The basis upon which success depends is a studious disposition, an analytical and highly disciplined mind, power of consecutive thought, adaptability and good judgment. Anyone who possesses these may hope to achieve the highest results. Without them his success can be only partial.

CHAPTER XVII.

THE LEGAL DEPARTMENT — THE COUNSEL, CLAIM AGENT AND SURGEON.

This department requires the diversity of talent, experience and skill of a lawyer, supplemented by the technical legal wants of the railway service and the needs of corporations as distinguished from those of individuals. These qualities are not to be found in one man. The department, consequently, requires a staff possessing this diversity of talent. While its chief may not be an expert in every department, he must possess such versatility of talent and breadth of view as to enable him to assist and direct his aides in their respective duties; he is commonly known as the counsel.

The jurisdiction of the counsel is not uniform upon different roads, any more than that of other officers. His duties vary according to peculiarities of organization and the needs of the service. Upon one line the counsel will have particular supervision over all matters requiring knowledge of the law, so that nothing may be done, or omitted, that may cause the company embarrassment. On another line his duties will be more restricted. In many cases the great diversity of skill required, coupled with the work to be done,

causes the duties of the counsel to be divided under two or more general heads. The organization of the legal department of a railroad, like other departments, depends very much upon the character of the men in charge. There are, however, fewer changes in the methods of this department, it is probable, than of any other connected with the service. It responds, however, in a measure, to the peculiarities of men, as in other cases. Whenever anyone who works for a corporation displays great talent or facility for business, that which he can do better than anyone else drifts to his charge. It is the old law of selection. The law, however, has less effect in corporate life than in private practice. It is more difficult to act; many contingencies have to be considered. It is oftentimes better to submit to present inconvenience, even lack of the highest efficiency, rather than make a change.

The counsel, like the civil engineer, brings to the discharge of his duties a general and, in many respects, particular knowledge of the duties he has to perform. He cannot, as with many other servants of railroads, learn them after he has been installed. He is, as a rule, a man in mature life when he enters the service. This operates somewhat to his disadvantage. The true instinct of a business can only be acquired when men are young; before they have reached manhood; while they are taking on new impressions; while assimilation is still easy and natural. Because of this the counsel does not possess in

many respects the practical knowledge outside of his particular department that many other railway officers do. However, in all the fundamental principles upon which the department is founded he is thoroughly well grounded, and it is upon this that his success depends. But however great a lawyer he may be, he will require upon entering the service of a railway company to renew his studies with as much assiduity as if still at college. The legal requirements of railways constitute a distinct department of the law and their understanding involves special knowledge.

The uncertainties that attend the operation of the law in everyday life are greatly intensified in the case of corporations, because of the peculiar relations they bear to the community, and the prejudices, ignorances and misconceptions of the latter. This is so well understood that it is the habit of railroads to employ a permanent staff of young attorneys, who have grown up in the service and possess a practical knowledge of the situation and the forms and observances to be followed. These lawyers rarely, if ever, reach the headship of the department. They are not sufficiently known. They are, however, invaluable in the discharge of business, and are numbered among the most valued and trusty servants of a company. Talent here, as elsewhere, however, asserts its supremacy, and the subordinate not infrequently becomes the chief. Those who are on the staff of the counsel occupy a position quite

equal to that of attorneys generally. In those cases where the remuneration is not equal to that of the practicing lawyer, compensation is found in permanency of place and certainty of pay. The study and practice of the law affords, above all other occupations, the greatest opportunity for the display of a man's acumen and mental resources. I except, of course, specialists among lawyers. The environment of the latter narrows their conceptions and aspirations. But there opens before the general practitioner a continually widening vista; possibilities of the greatest usefulness and intellectual glory. His views are broad. He possesses an abstract appreciation of what is right, above all other men. His profession compels him to serve zealously whoever employs him; to believe in the righteousness of their cause. This is the first principle of fidelity. Wherever a lawyer is an honest man his practices confirm him in his honesty. Such a man is peculiarly well fitted to act as a trustee. He is faithful and single minded.

The field in which the lawyer delights depends, as with other men, upon his peculiar talent, but he is more able than other men to surmount natural obstacles. He can, however, only hope to become great, to be esteemed a genius, in the particular field for which nature designed him. Above all men he makes the best law maker. His selection is not a matter of chance or favoritism. With other men law making is an incident; with the lawyer it is

the breath of life. While other men view the formation of laws from a narrow standpoint, or perhaps from the standpoint of personal advantage, the lawyer lives in its spirit; he alone strives to view it from the standpoint of equity. His fault is overzeal. He makes too many laws. The sending of lawyers to legislatures is based upon superior fitness. While there are many individual cases of demagogism, of neglect, inefficiency and wrong doing, on the whole they afford the best material we have at present to select from for making laws. With the growth of a country and the accumulation of riches or competencies by men and families, there grows up a class of men with leisure and disposition to fill public places; men who fit themselves in advance by a thorough education; who are familiar with the history and laws of their country and with the histories and practices of other countries; patriotic men who cannot be bought or improperly influenced. This class approaches the consideration of public questions from the highest standpoint, and therefore forms the natural governing class of a country. Any country that has a large number of such men in its service cannot retrograde; any country that has not such a class in its service lacks an essential element.

The railway counsel is rarely seen by the great mass of men actively occupied in the operation of railroads. His duties are not such as to bring him in contact with them. It is only in those

things that involve recourse to the law or the technicalities of lawyers, that he is seen. In the discharge of local matters he acts through his assistants. They consult with him. He is especially the counselor and adviser of the directors and managers of the property.

The knowledge and experience of the law department must be such as to enable it to act intelligently under all circumstances and without previous notice. The legal interests of a company involve momentous consequences. Those who advise must not only possess sound knowledge of the law, but good judgment. The counsel of a company is the adviser of his associates in the management in all cases where the law is not perfectly plain. He erects the structure on which the vested rights of a corporation are founded. It must be safe, broad and deep. He passes upon the legal documents of a company. He must be familiar with the customs and precedents of courts, from the highest down through all the intermediate grades to that of the country squire. He must be able to argue with dignity great questions of constitutional right or plead persuasively the cause of the impecunious operative whose pay has been garnished. He must perform all sorts of duties without preparation or sensible interlude. In all his acts he must take cognizance of that unwritten law that leads the juryman to cast his verdict for his neighbor whenever a conflict occurs between him and a corporation.

The counsel must not only be a great and ready lawyer, but a man of affairs, capable of taking cognizance of petty things and able to discuss the details of business with those who frequent his department. He must have some knowledge of surgery as well as law, and must be able to discuss intelligently with the farmer the price of pigs, horses, yearling heifers, milch cows and other products of the country. He must be an adept in human nature; must have an intuitive knowledge of what is true from what is false. This is especially necessary in the settlement of claims. He will discover here that much that is averred has no reality except in a too vivid imagination; that exaggeration is the rule instead of the exception.

The experiences of the counsel are such as to greatly shake his faith in men's integrity. His files are filled to repletion with evidence of man's duplicity and greed. He finds that nothing is too absurd or too improbable upon which to base a claim against a railroad company. Thus, his records bear evidence that there are many men constantly traveling about the country without visible means of support who are yet losing a great quantity of baggage through the carelessness or neglect of railway employes. Many of the claims made upon him for personal injuries are equally absurd. It is not too much to say that the bulk of the claims brought before him are exaggerated or fictitious. But in order to refute them the aid of skillful devices is necessary. In every case evidence must be collected, experts interrogated, witnesses called; in fact, all the machinery known to the law actively put in motion.

The railway lawyer is called upon constantly to combat popular prejudice against railways; among other things to prevent the blind goddess deciding against his company whether or no. He must be suave, upright, capable; the embodiment of frankness, yet astute and wily as the fabled serpent.

A railway company is embodied capital. It is timid to a degree that would surprise those who prate of its arrogance and the injustice of its measures. The most contemptible knave in the land, if he occupies official position, is listened to with obsequious deference. His acts of petty tyranny are accepted with patience and humility. So anxious are the railway companies to propitiate public sentiment that they submit without protest to acts of the greatest injustice. The law of self-preservation governs them. So long as their life is not threatened they temporize; they will do anything to placate their tormentors. But when their productiveness is seriously menaced, then they fight. And it is fortunate that this is so, otherwise the commerce of the world would long ago have been ruined by the ignorant and demagogical who have sought in season and out of season to curtail or destroy the usefulness of railroad property.

The official life of the railway counsel may be

said to be a constant struggle against overwhelming odds; an heroic effort to secure justice in the face of a pernicious sentiment that lightly esteems the sacred character of vested rights and ignores in practice the perfect equality of the corporation and the peasant before the law.

The duties of the law department embrace the drawing of all important contracts, agreements, leases, mortgages, charters and other documents. It has charge of the interests of a company in all suits to which it is a party. With the general management the law department looks after legislative interests. It has charge of claims for losses, damages and delays to property entrusted to the company and the expenses incident thereto; also claims for damage by fire, or otherwise to property along the line; also claims for persons injured or killed, including the expenses incident thereto, such as doctors' bills, the services and expenses of nurses and attendants, medicines, surgical appliances, artificial limbs, the fees of coroners, undertakers, witnesses, etc.*

The legal department has charge of claims for damages growing out of railroad crossings; claims for injuries to lands from overflow occasioned by

*A bureau is in many cases organized for the purpose of handling claims for injuries.

Claims for damage to baggage are also in many cases assigned to the general baggage agent or other bureau officer, for a full description of which the reader is referred to the book, "Passenger, Baggage and Mail Service."

Special officers frequently have charge of claims for loss of freight or damage thereto.

the company's embankments or roadbed; claims for injury to crops and other property caused by construction work; claims for damages to property because of the proximity of the road or for other cause; claims growing out of the removal or repair of buildings rendered necessary by the company's improvements; claims for right of way, depot grounds, yards, etc. All these matters are under the charge of the legal department, although they are in many cases, perhaps the majority of cases, settled by other departments.

The lawyer is the equal of all, and the superior of most men. He is not, however, a good business adviser. His habits are not such as to make a good business man of him, and only men of genius rise above their environment. Business is based on good faith, as between man and man, absolute and final. It is exceedingly informal. Above all things it is robbed of technicalities. The object is in every case succinctly stated, the agreement clearly understood. Minor details are not only disregarded, but unthought of. Business could not be carried on in any other way. It would require too much time. A lawyer cannot understand this. His peculiar training and habits render it impossible for him to adapt himself to a state of affairs apparently so loose and incoherent. He sees in every act something that may lead to complications. This timidity makes his advice in commonplace matters undesirable and renders him a stumbling block to business men instead of an auxiliary. His services are,

however, indispensable in consummating understandings that extend over a long period of time, in which many men and varying vicissitudes operate. But his duty here is that of a lawyer, not that of a business man. Business men have little occasion for the services of lawyers except to prosecute or defend suits growing out of misfortunes or shortcomings. Every business man is compelled to possess a good rudimentary knowledge of the law. He cannot do business without it. If the lawyer could sink in commercial matters the technicalities of his calling, he would make the greatest of all business men because of his grasp of affairs. But it is only in infrequent cases that he can do this. The moment he attempts to do business he is crushed by the superincumbent weight of precept and practice that his observation has taught him to be necessary to avoid legal complications and to save himself from harm when they occur.

The injuries that grow out of the train service constitute a distinct feature of the service.* They are looked after conjointly by the surgeon and claim agent; the first skilled in injuries, real and imaginary, the second in the subtleties of claims, their peculiarities, inaccuracies, subterfuges, assumptions and realities. The surgeon

* The question of accidents is given consideration in the book, "Train Service."

applies his art; the claim agent follows with his financial poultice.*

Property losses and damages the claim agent settles according to his judgment. In the settlement of claims for injuries, he is governed by the report of the surgeon. The settlement of claims for people killed and injured by railroads is a profession in itself, and requires of those in charge fine business qualities and the characteristics of a good criminal lawyer—ability to extract the truth from a maze of misrepresentations.

The office of surgeon grows in importance, like all other parts of a railway, with increased knowledge. His field will, it is probable, in time become as clearly defined as that of the civil engineer. He deals in an exact science. He is, however, in spite of this, too often made the dupe of the designing. He cannot always distinguish between the man whose back has really been sprained in an accident and one who only claims that it has. But his shrewdness and knowledge will, in the majority of cases, enable him to separate the real from the fraudulent. The duties of the surgeon are multifarious. He must be skillful and experienced in his profession. The cases in which he will be called to act are generally cases of emergency. He must, therefore, possess presence of mind and readiness. In case of accident to a train, where many people are injured, he will find

* The method of treating the various classes of claims made against railroads in their accounts is described in the book, "Freight Business and Affairs."

it necessary to call into requisition all the available surgeons of the vicinity. They act under his direction. He must, therefore, possess ability to manage them. He must be familiar with railway appliances, so that he may speak intelligently of them as a witness and otherwise. In case of collision or other accident, he must, if necessary, be able to take charge; to see that the injured are properly cared for; that their property is looked after and their friends notified. It is his duty to see that steps are taken to identify the dead. As accidents are generally followed by suits against the carrier, the surgeon must see that records are kept of the nature and extent of the injuries, names of persons, witnesses and other particulars.

The relations of a surgeon to a company are of a confidential nature. He is required to assist in the adjustment of claims and in all things to make the company's interests his interests.

CHAPTER XVIII.

THE TRAFFIC MANAGER AND HIS STAFF — THEIR DUTIES.

In the United States the traffic department has felt, more acutely than any other, the effect of free railway construction. Upon it has fallen the burden and perplexity of the situation; the duty of preventing ruinous diversions, of making competitive traffic profitable. If its efforts have not always been successful, it has not been owing to a lack of ability, but rather to the situation of affairs; mainly to the absence of government provision legalizing pools; an omission fraught with great danger and perplexity, and one that has entailed incalculable loss upon the community as well as the railroads.

The traffic of a railroad is divided under two heads: interline and local. Interline business consists of that which begins or ends upon another road; local business that which originates and terminates upon the same road. These may, in turn, be divided into competitive and non-competitive business. Both the interline and local business are partially or wholly competitive. Business may be said to be competitive or not, according as it is affected by competing interests. The paralleling of a line, or the

building of a road in proximity to one already existing, makes the business of both competitive, although the two lines may nowhere touch the same towns.*

The handling of the business of a railroad requires active and constant attention. Local traffic must be looked after along the road, while interline business necessitates constant intercourse between those concerned in its handling. Commissions and bureaus are organized and conventions held to regulate competitive business, to adopt rates, agree upon divisions and enforce other necessary regulations. This branch of the service grows more and more in importance with each year, so that upon many lines there are more or less officers who have no other duty.

The increasing disposition of the government to actively interest itself in transportation matters also demands more and more the attention of traffic managers. They find it necessary to wait upon government officers and commissions; to furnish them information; to point out to them what is practicable; what is impracticable; what is wrong; what is right. This is becoming more and more a burden and necessitates for its discharge experience and talents of the highest order.

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* Business is also rendered competitive by the markets of the world and the carriers of other districts and countries. Thus, the cost of wheat at Odessa and the carriage to Liverpool distinctly affect the price of wheat and the rate of carriers in the United States.

The traffic manager's duty is to make rates and otherwise supervise the transportation of business carried on by others. This definition also sums up the duties of railway officers generally. They are not traffickers—simply intermediaries. The duty of the traffic department to prescribe the rates that shall be charged for doing business, and the rules and regulations that shall govern the handling of traffic, is more complex than would appear at first sight. It requires both experience and ability. Upon the skill exercised in fixing rates, so as to protect the carrier and at the same time stimulate production, depends in a great measure the prosperity of a company. So great a responsibility requires for its discharge sobriety, mature judgment, clearness of perception, firmness, consistency of purpose, practical experience, perfect familiarity with the resources of a company and a knowledge of political economy. The duty of making rates is like the task of Sisyphus; it is never finished; when the stone has touched the summit it plunges headlong to the bottom again. The adjustments of trade are minute and constant. The arrangements of yesterday require revision to-day and abandonment to-morrow. No department of a company requires greater talent than the traffic department; none requires greater practical knowledge of the resources of a property. This information cannot be easily or quickly acquired. A new or unfit traffic manager may occasion a company a loss of a million of dollars of revenue without

anyone suspecting it, save possibly a few obscure and unimportant officials. Wherever the methods of a company are not such as to keep men continuously in its service, not such as to build up a corps of able and experienced men, we may believe without enquiry that its traffic losses are proportionate to the inexperience of those in charge.

In no department of the service is practical acquaintaince with a property of such value to a company as in this. No change in its personnel should ever be made except for cause, except under extreme pressure. To make a change is very much like transferring a great commercial business from the control of A. T. Stewart to John Stewart. The former understands it and is able to manage it; the latter may have no ability or commercial knowledge whatever.

In order to handle the traffic of a railroad effectively, those in charge must be familiar with all its details. They must also know those who handle it, both shippers and employes. Upon the harmonious action of these units of the service depends the effectiveness of the whole.

It is the duty of the traffic department to prescribe the conditions under which business is done; to classify the traffic; to fix the rates that shall be charged, whether for carriage, storage or handling; the route business shall follow; the regulations governing those who handle it, at stations, upon trains, and elsewhere; the measures that shall be taken to insure promptness, fidelity and accuracy; the formulas that shall be gone through with at

the place where the traffic passes on to the line, where it leaves it, and at intermediate points; the kind of cars that shall be used; what shall constitute a load; how traffic shall be loaded; the disposition that shall be made of claims, etc.*

THE GENERAL FREIGHT AGENT.†

This officer and his assistants deservedly rank among the highest in the service of carriers. It is their duty to look after the freight traffic; to secure business; to build it up; to prevent its diversion; to maintain intimate and pleasant relations with the public, and especially with patrons. They are, as a rule, men of rare and comprehensive ability, of painstaking and laborious habits, wise in council, wary in intercourse, courteous, obliging and kindly. They prescribe rates for freight and the regulations governing its transportation; how goods shall be classified;

*These rules and regulations I have embodied in other books relating to passenger, freight and baggage traffic. They are never the same upon any two roads, but vary according to the nature of the traffic, the disposition of business and the skill of those in charge; like all other rules and regulations that affect railroads, they are being added to from day to day. The first systematic attempt to compile rules and regulations for the handling of traffic, like those governing the movements of trains, was made by the writer many years ago, after a thorough enquiry into the practices of different companies in this country and abroad. These rules and regulations formed the basis of what has been done since.

† Many of the duties and responsibilities of this officer, also particulars connected with the accounts and the handling of freight, are embodied in the book on "Freight Business and Affairs."

the charge that shall be made for loading, unloading, switching, demurrage, storage and kindred purposes; the route that freight shall follow; the disposition that shall be made of perishable property in contradistinction to other freight; the disposition of bullion, precious metals and stones that cannot be received as common freight; the care that shall be exercised in weighing and inspecting freight at the point of shipment or *en route;* the inspection of cars; the care that shall be exercised to prevent overloading; the kind of cars that shall be used; what classes of freight shall or shall not be loaded together; how freight shall be placed in or upon cars; the regulations governing the handling of freight *en route* and at destination; the time it may remain in the custody of the company without charge; the rules to be observed in the delivery of freight; the disposition to be made of claims for delays, losses, damages, overcharges and errors; how cars shall be locked or sealed; the carrier's duty and the extent of his liability, and, finally, the enforcement of measures necessary to insure promptness and reliability in receiving, loading, forwarding and delivering freight. Such is a brief synopsis of the duties of the general freight agent.

The intricacy of the business over which this officer presides surpasses belief. With apparently nothing to do but arrange and print his tariffs, and idly confer with those who visit his office, he is really compelled to watch with unceasing

vigilance the fluctuations of commerce as it ebbs and flows over a wide extent of country. His official duties bring him into immediate contact with the men who control the destinies of the world; the people who crowd our passenger cars and fill with their products the freight trains that wind across the country; men far-seeing, crafty, oftentimes unscrupulous; men animated by but one purpose in their business life—gain; men who know exactly what they want, and who never waver for an instant in their strife to attain it. These people crowd the antechambers of the general freight agent, each man esteeming his particular business imperative. When they finally reach the man they seek, they are surprised, perhaps enraged, to find him quietly trimming his nails, or softly smoking a cigar, cool, collected and amiable, seemingly animated by no higher object in life.

The general freight agent is, however, a thorough business man of the world, at once thoughtful and observing. In every comer he recognizes a person likely to demand some concession inconsistent with the interests of the company, unfair in its relation to the pursuits of other patrons, absurd in its inception, and brazen in its application. His countenance, however, gives no indication of his thoughts. It is his duty to be attentive and respectful. His considerate treatment is, however, oftentimes misunderstood, and the claimant, becoming more and more animated as he sees the fruition of a long cherished hope,

plies the passive agent with specious arguments and flattery the most insidious and seductive; these failing, threats dire and dreadful are poured into his attentive ear, the awful consequences to the company of the applicant's displeasure. This displeasure may comprise any or all of the things a railroad most fears—legislative interference, unpopularity, alienated friends, loss of trade, stagnation, death! Any or all of these may follow refusal, while a rival line across the way, with restricted facilities but more wisely governed, will flourish and grow fat upon the vast accumulation of business that will roar and surge around its gates. Such are the methods of those who approach the general freight agent for favors. It is his duty to sift the chaff from the wheat, the true from the false.

The correspondence of the general freight agent greatly exceeds that of any other officer in its extent and variety; it is very large at all times with agents, while enquiries in reference to rates and accommodations from every direction and from all kinds of people have to be answered — from the flourishing inland city that esteems itself metropolitan, to the isolated hamlet happy in the belief that it will one day become the county seat; from the opulent merchant, who annually disburses many thousands of dollars for freights, down to the despised pack peddler who cries his wares from town to town.

The general freight agent is also compelled to carry on a protracted and wearisome correspondence in regard to claims for overcharges, and for goods lost or damaged in transit. If the claim is for local traffic its adjustment is comparatively simple and expeditious, but if on business that has passed over several lines, it is necessary that the charge should be fixed upon the company in fault. In the discharge of this last-named duty the bureau of claims delights. Each claim is to it a mine of riches, not to be exhausted with haste or surreptitious labor, but to be worked up professionally, the advances being easy and cumulative in nature. Every subject is approached in the firm belief that the other company is to blame, and to the substantiation of this belief the adjuster is prepared, if necessary, to devote reams of paper and years of patient investigation. In all his communications with brother officials the general freight agent manifests the most contentious spirit, indulges in the most exasperating insinuations, denies all mere assertions and requires, in every case, dates, names of responsible parties, the production of original papers and the affidavits of conductors, agents and others. And, finally, when every demand is satisfied, every question answered, every statement substantiated, he is still filled with suspicion and hesitation. The claims against a railway company for goods lost or damaged are so great and so difficult to treat, that upon many lines they are of sufficient importance to warrant the creation of a distinct department, with an officer in charge who has no other duty than

to patiently and impartially investigate their merits and settle those found to be just.

In England our general freight agent is called a "goods manager." The term "goods" is used in that country instead of "freight," the latter being employed only in connection with the cargoes of vessels. In this way, no doubt, originated our custom of speaking of "shipping" freight by rail.

The bulk of the revenue that flows without cessation into the coffers of railway companies is derived from the transportation of freight, and by freight is meant everything carried by freight trains.

The formulas for carrying on the freight business are, compared with those of the passenger traffic, rude and inexpensive. The general freight agent has his aides, his chief clerks and assistants, all of them men of great experience and superior capacity. These officials partake of his habits of manner and thought; he, in fact, gives tone and color to everything that pertains to his department.

The duties of the general freight agent require for their creditable performance an understanding of the technicalities and the philosophy of transportation. Proper provision for conducting the affairs of the department is dependent upon personal acquaintance with all the multitudinous incidents of the freight business. Those who make its rules must be familiar with the handling of merchandise at the warehouse doors;

how it may be loaded most advantageously; how handled *en route;* how unloaded and delivered. To enable the general freight agent to compass the difficulties of an equitable tariff and a model classification, he must possess something more than a superficial knowledge of the classes of freight that seek transportation over his lines. He must be familiar with the cost of doing business; with the weight and bulk of freight; with its value; with the risks attending its handling. This information requires years of observation and practical association; years of laborious work in subordinate offices. All the practices and theories of the general freight agent must be based upon a shrewd understanding and abundant technical knowledge. He must understand better than anyone else the possibilities of the freight business, wherein it can be determined by fixed tariff and arbitrary rules, wherein it must be left to the daily fluctuations of trade and the special requirements of isolated offerings.

The proper conduct of business requires that the general freight agent should understand the topography of his company's lines and the nature and extent of their productions. The strife for business at competing points especially necessitates his keeping himself advised of the resources of rival companies and the business of competitive districts. To protect the interests of his company he finds it necessary to meet the officers of competing companies from time to time, and with them come to such agreement as he is able

in reference to a division of business. In the performance of this difficult duty he is able to display his ability to great advantage.

In the early history of railroads in America, the freight accounts were kept in the office of the general freight agent. It was his duty to prescribe the rules and regulations governing the same. With the lapse of time, however, it was found that he was so much engaged with the handling of traffic that he was able to give but little if any attention to the accounts. The latter suffered in consequence. The same thing occurred in connection with the passenger accounts. A way out of the difficulty was found in the appointment of freight and ticket accountants or auditors who, while nominally subordinate to traffic agents, were really independent. Afterward this independence became pronounced through the incorporation of these auditors into the accounting department, a department organized especially to look after receipts and expenditures, and the returns and books connected therewith. Upon some roads the accounts will, it is probable, be retained in the office of the traffic agents, but cases of this kind will be rare, except where the business is very small and the agent possesses peculiar talent for performing the work of an accountant.

One of the functions of the accounting department is to audit the traffic accounts; this function, it is apparent, lapses when the traffic agent himself keeps the books. Railway officers differ

(according to their position and knowledge) as to the value of auditory supervision, but all agree that men who devote their whole time to a study of accounts are more likely to manage them efficiently and economically than those who give the subject only cursory attention. Upon this last named ground, accounts are, so far as possible, merged in one department under an officer especially versed in such matters.

GENERAL TICKET AND PASSENGER AGENTS.*

It is generally recognized that these officials, together with all who sell tickets or have anything to do with the handling of passengers, shall be well bred; men without angles, hobbies, or idiosyncrasies; self poised; men so well grounded in the common courtesies of life that nothing can disturb their equanimity. When they do not possess these characteristics, and exercise them, a company would do well to close the offices they occupy. Good breeding, however, is not a sole requisite; they must be experienced business men, adepts in knowledge of human nature; above all, versed in the ways of those who travel.

The general ticket and passenger agents, like other traffic officers, are occupied mainly in the building up and retention of business. These

* These officers cannot be described separately. For further reference to their duties, also for particulars in regard to the handling of passenger business and the accounts and tickets connected therewith, see book "Passenger, Baggage and Mail Service."

officers come into contact with the traveling public and are, therefore, especially versed in its ways and wants. There is little in common between the freight and passenger departments. Their methods are so different that there is scarcely any sympathy between them. The character of the men in charge is different; their ways are different. They resemble each other only in this, that the revenue of both departments goes to swell the grand total.

The general ticket and passenger agents are able to do much to facilitate affairs; to expedite public convenience; in the case of excursions, by judicious action they may undoubtedly create traffic. In the case of regular business they can, by the exercise of careful discernment and wise practices, do much to increase its growth. But care must be exercised here and elsewhere at all times, lest the natural traffic of a line be frittered away in concessions, under the impression that new business is being created. It is the duty of the ticket department to make rates for the traffic of passenger trains; for dead people as well as those who still live; for quadrupeds; for the extra baggage and parcels of travelers; it also prescribes the kind of ticket that shall be used and the conditions attending the same, and the rules and regulations for ticket offices and attendant waiting rooms; it enforces measures that will compel passengers to buy tickets before entering the cars; it sees that ticket agents keep themselves supplied with different kinds of tickets; it enforces

such measures as may be necessary to prevent the company being cheated by the use of fraudulent devices; it sees that the custodians of tickets carefully protect the same; it provides regulations for different classes of business; it aids the treasury and accounting officers in their efforts to enforce collections; it keeps posted as to the devices and traffic of other lines; it prepares and publishes advertisements; it cultivates the good will of the public; it makes known to agents and others the legal obligations of the company and its employes; it prescribes the disciplinary measures that shall be enforced in the case of delinquent or obstreperous passengers; it indicates the line of behavior to be observed by station and train men in their intercourse with passengers; it prescribes the trains by which passengers shall travel; and, finally, its duty is to perform any and all acts that the procurement or retention of business involves, including the making of proper provision for the comfort, convenience and safety of those who travel.

The general ticket agent compiles and publishes the tariff of rates, and it is he that arranges—either at the conventions that meet from time to time, or in private conference—with connecting lines the proportion each company shall receive on interline traffic.*

* The general conventions of the general ticket agents referred to have done much to build up convenient practices for the handling of through or interline business, for ticketing passengers, checking their baggage, and settling the accounts and balances that these give rise to afterward.

The discretion of those in charge of the passenger business is ample. The department has, as a rule, entire control over agents located off the line in any way connected with the handling of passengers. It thus directs the foreign policy of a company so far as it relates to passengers. It is, however, like other departments, very much the creature of circumstances, and where bad practices are introduced by competitive lines, is frequently compelled to follow, however reluctant it may be to do so.

It was at one time the current belief of practical railway men that the general ticket or passenger agent should be a jovial, rollicking dog of rotund paunch with fat capons lined; a man with Falstaffian capacity for absorbing sack and kindred liquors, and possessing withal a preternatural love for grog shops and late dinners; a person able to absorb into his capacious maw both the innocent and the ungodly; a man who kept a wary eye out for business but prosecuted it in a style congenial to his tastes; a hail fellow well met; a man with magnetic voice and manner, able, by a look or word, to entrap the unsophisticated; a good fellow, in fact.

Gradually, however, it became apparent that the steady, plodding application of a sober life was better fitted to cope with the difficulties of transportation and the strife of competition, than a mind ablaze with wine. Hence a change of policy.

In the conduct of business the name of the general ticket agent, with his legendary title, is

usually affixed to the tickets issued by a company. Those who purchase these documents read the name at the bottom, but the identity of the official, his corporeal person, is as mythical, if not as problematical, as the milestones on the Dover road.*

The machinery of the passenger department can only be appreciated after careful examination. It is so nicely balanced that the dull and heavy witted emigrant wending his way over many lines to his far off destination, speaking a foreign language, inadequately provided with means, ignorant of the country, destitute of friends, beset by sharpers, is yet able to pursue his course uninterruptedly, unconscious of the dangers that surround him, his every want attended to, and his property protected with scrupulous fidelity.

In addition to providing for the needs of interline and local business, the wants of the people who inhabit the suburban towns that dot the lines of metropolitan companies must be looked after by the general ticket agent. These merit a

* "Many people suppose the General Ticket Agent to be simply a ticket seller at a union office—the agent for a number of lines—from which circumstance the 'general' nature of his duties is inferred. Some railroad companies even seem not to have been quite clear on this point. The writer once called on the General Ticket Agent of a prominent road in the East, and found him measuring wood for the company, and so engrossed in the mysteries of the fuel account as to be quite foggy on through routes, rates, divisions, or any of the various topics supposed to be of particular interest to passenger men."—*Mr. S. F. Pierson, Account of the General Ticket Agent.*

volume in themselves. Their needs are infinite and their claims so great that they can only be approximately supplied; they come from every class and condition; old and young, male and female, rich and poor, from the amiable gentleman who occupies his villa down through all the gradations of society to his poor neighbor, with lean and hungry purse and still more lean and hungry heart.

The habits of the general ticket agent are versatile. He combines the characteristics of the wholesale merchant with the petty functions of the small tradesman. No one must go away from his door unanswered; no one must go away unsatisfied. To each he must give the consideration that his case demands. For each provision is contemplated. His visitors are legion. They comprise the excursionist, the picnic man, the patriotic citizen, the humble politician, the subdued and sombre dominie, the jovial circus agent, the theatrical character, the autocrat, the patrician, the first class passenger, the emigrant, the suburbanite, the colonist, Lo, the poor Indian, the real estate man, the employe, the undertaker, the youth of fifteen traveling as a lad of eight, the man who is content to occupy the second class carriage, the young miss going to the adjoining town to school, the ferocious drover, the friendly drummer, the man who won't buy a ticket, the man who wants a pass, the mendicant, the impostor, the rich, the poor, the worthy, the unworthy, the blind, the lame, the dumb and the

halt. These people fill his office and occupy his time and the time of his assistants. To meet them and send them away content requires that he should be a man of infinite resources; of extended knowledge; a faithful student of human nature; an adept in the art of reading character; a pleasing, amiable and kindly man.

The duties of the department are laborious. The securing of business is only an incident. It must be adequately handled. Letters must be written, reports examined, statements rendered and tickets prepared. This last named duty is more onerous than would be supposed and gives rise to the exercise of great ingenuity. The tickets of railroads are marvels in their way; in them condensation has reached its utmost limit. The object sought is to reduce the size so as to avoid inconvenience to the traveler, and yet afford needed information and facility. The thought that has been given the subject cannot be appreciated except by those familiar with the work of the department. Yet each day adds something new, some further means of making the ticket perspicuous and convenient, more certain of attaining its varied purposes. It is impossible to classify or enumerate the different forms of tickets in use. They are such as the convenience of business requires. They vary according to the exigencies of traffic, new ones being prepared and old ones withdrawn as circumstances require. The tickets in store upon an ordinary railroad fill a storehouse in themselves;

they represent, constructively, hundreds of millions of dollars. This supply has not only to be kept up, but must be carefully guarded and so systematically arranged as to prevent confusion or loss. This requires painstaking labor and minute attention.

It is not probable that any executive office in the world exacts of its incumbent greater attention to detail than the ticket department. Its business requires the most careful forethought and preparation. The skill it evinces excites our highest interest. It has in every case been equal to the situation. But far from being satisfied with its achievements, it continues to give the needs of the service painstaking thought. It is still far from satisfied with its work.

The general passenger agent looks after the advertising branch of the business. He is an insatiable publisher. He must therefore be something of an author. He has a fine eye for spectacular effects; an acute appreciation of large "caps" and "display" type; a good eye for colors. His style is peculiar; it is at once animated, sententious and florid, rising without effort to the height of five gigantic exclamation marks, and falling away with easy grace to the finest print. Everything he does is in keeping and happily accords with his purpose; this purpose is to secure business; to distance rivals; to attract the public; to win it. His methods are varied, yet simple. We see them in the shame-faced poster that hangs like a beggar's shirt on the dirty walls;

in the modest hand bill that adorns the gutter's edge; in the highly colored bulletin; in the carefully worded article of praise he sends to the newspapers. He everywhere strives with indefatigable zeal to make the depots of his company the Mecca of travelers. A reading and thoughtful man, he is also an observer. He knows how to reach the traveling public; what newspapers, magazines and periodicals to patronize; how advertisements should be arranged, where placed. Wherever he goes he scans the prospect with eager eye, ever attentive to the possibilities of an advertisement. To him a blank wall is more attractive than cataract or dell; a promontory more precious than gold. His circulars display care and tact. Gibbon, in his most luminous pages, never labored with greater animation or enthusiasm. That many of his advertisements remain unread except by prying agents of rival lines, does not alter his interest or lessen his enthusiasm. It is professional. It is, however, as a geographer that the general passenger agent excels. At his pleasure he obliterates space and annihilates time. Under his deft hand mountains disappear or take on the guise of gentle hills; great cities skip long distances upon his maps like lambs upon the village green, and rivers sink into the ground without leaving a trace. Nothing is impossible to him.

The duty of preparing passage tickets and caring for them until required for use is, upon many lines, perhaps a majority of them in

America at least, entrusted to the general ticket agent.

When tickets are sent to agents to be used, invoices accompany them. An accurate account is also kept of those in the hands of each agent. The returns of agents for sales are sent to the officer known as ticket auditor. It is the latter's duty to audit the accounts of those who handle tickets or collect fares. He also arranges with connecting lines for the proper auditing of interline traffic. The result of his labors he reports to the accounting officer. In some cases the general ticket agent has immediate charge of the accounts. This was at one time the general custom. The practice has, however, fallen into disuse in the majority of cases. The duties of the general ticket agent are not such as to make him an expert accountant or as a rule afford him time to give the subject the attention it deserves. Moreover, the necessity there is for auditing his accounts (the same as other officers') renders it necessary that the means of doing so should be delegated to an independent person. This audit cannot be effectively accomplished without the accounts. However, the placing of the latter in the hands of an independent officer, devoted wholly to such matters, rests upon higher grounds than the mere auditing of the affairs of the general ticket agent. It is based upon the desirability of having such matters looked after by an accountant; by an officer who gives his whole time to such matters; by an expert. The

auditing of the accounts of a railroad is a business in itself, exacting, laborious and complicated.*

The general ticket and passenger agent must be alert and observing. He must be skillful in discerning the wants of travelers and in making them contribute to the aggrandizement of his company. This is the highest test of fitness. The functions of the office are not noticeably different on different roads.

Mingling much with the world, the officials of the passenger department quickly acquire the habits and tastes of cosmopolitans. Compelled to cultivate the art of pleasing, they possess, under an outward show of frankness, an alert, subtle and far seeing understanding.

One of the duties of the ticket department is to look after the baggage of travelers. The peculiar character of this work, the immensity of its details, and the necessity for accurate knowledge and precision, long ago, however, led to the creation of a separate bureau for handling this traffic. Its duty is to provide checks or tokens, look after the safety of the property and surround the business with salutary regulations.*

*This phase of the subject receives exposition in the book "Passenger, Baggage and Mail Service."

*I have described these in the book "Passenger, Baggage and Mail Service."

CHAPTER XIX.

THE PURCHASING AND SALES AGENT AND HIS DUTIES.*

The buying of railway supplies requires varied talents and familiarity with the subject. The ability to buy and sell advantageously is dependent upon knowledge of men and markets and skill in taking advantage thereof. The discretion of the purchasing and sales agent should be ample, and such as to afford his employer the benefit of his judgment, experience and skill. He must not only know how to buy and sell, but must possess a technical knowledge of the articles he trades in, otherwise he will not be able to secure the respect of his associates or the employes who handle and use the material. His sagacity and talent must be such as to command at all times reasonable compliance with his wishes.

The fluctuations in the goods a company uses necessitate constant experiments and changes. These fluctuations are as marked as in the case

* Only a brief sketch of the duties of this officer is given here. They are so intimately associated with the handling of material that the questions relating to the latter must be considered in connection therewith. For a more detailed description, therefore, the reader is referred to the book entitled "Disbursements of Railways."

of millinery or dry goods. An article in use to-day is cast aside to-morrow for something new, something better or more desirable. The advantage the changes afford a company should be found out quickly by the purchasing agent. If he commands the respect he should, his advice in such matters will be listened to and promptly acquiesced in. The purchasing agent must not only have an intimate knowledge of supplies and their value, but must have a good knowledge of the physical property of the company employing him. How can he anticipate its wants or act intelligently otherwise?

The character of the purchasing agent, it is apparent, must be such as to invite confidence. Wherever good business usage is observed, safeguards are thrown around positions of this kind. The office is, indeed, similar to that of a cashier of a bank. The exercise of safeguards in the latter's case excites neither opposition nor comment. Their necessity is recognized and acquiesced in. In the appointment of cashiers, ticket sellers and others holding responsible positions, only men who have, by experience, shown themselves to be trustworthy are chosen. To appoint a man who had not shown himself to be trustworthy and capable would stamp the person making the appointment as reckless or unfit. If a cashier is unfaithful, we may discover the fact by counting his cash. But there are offices where it is impossible to detect unfaithfulness except after long and painstaking research. The purchasing

agents of a railroad are cases in point. The integrity of men filling positions of this kind should be above reproach, and their methods as carefully looked after as those of cashiers. Men who are honest will not object to this, and the wishes of those who are dishonest need not be regarded. There can be no doubt that the purchasing agents of railroads are generally as upright as cashiers or bank presidents. Unworthy men, however, sometimes creep into the service. A notable instance of this kind was the case of the purchasing agent of a Pacific company. The company in question found it necessary to sue the delinquent for the money he had stolen.

The assistance that a capable purchasing agent can extend to his associates in the management is hardly to be estimated. His duties familiarize him with all new devices, and his observation enables him to point out those most likely to lessen expenses or add to the efficiency of a property. The office cannot be made automatic. It must be vitalized by the presence of an experienced, able and strong man, possessing withal the amiability and tact in dealing with men necessary to give his position effective force.

Ability to sell at the best figure is a natural art possessed only by merchants, and in order to purchase cheaply, this art must meet its counterpart in the instinct to buy cheaply. The more nearly, therefore, the purchasing agent resembles the merchant, the more valuable he is likely to

be to his employer. It will not only enable him to trade advantageously, but his selection will be characterized by good judgment, and his methods of business will be systematic, adaptable and thorough. Only such a man can escape the wiles of those who traffic in the wares of railroads.

The opportunities of a purchasing agent, no matter how great, while not making his judgment equal to that of a person who uses the material (provided the latter is informed as to the various devices from which selection may be made), are nevertheless of value to a company as supplementing the knowledge of the latter, and as a reminder to him that his requisitions must pass under the careful scrutiny of an alert co-laborer. The more prolonged the experience of a purchasing agent, the wider his observation and the greater his value to his employer. Each day adds something to his knowledge of goods and their adaptability to his wants. The craft of salesmen is proverbial, and the most alert buyer frequently finds himself at a disadvantage. The greater the experience of the purchaser, the more probable that he will not be overreached.

The benefits that accrue to a railroad from a good purchasing agent are not so generally esteemed as they should be. Judging from the frequent changes that have been noticeable on many roads, the continuance of a purchasing agent in office is not thought to be a matter of especial importance. This cannot be the judg-

ment of experienced railway managers. They know better. It must, consequently, be the expression of those high in the government of properties who are yet lacking in appreciation. By these the place is too often looked upon as one that any man with ordinary intelligence can fill acceptably; a position at once agreeable and measurably lucrative, but not of especial importance. No greater mistake could be made. Directly the reverse is the case. To be able to buy its supplies at the lowest possible figure is of enormous value to a company, and a capable purchasing agent, it is probable, can save his employer a greater sum than any other officer of like grade.

A shrewd purchasing agent will constantly supplement his knowledge of affairs by intercourse with those who have practical knowledge of the use of the wares that he buys. He will be, moreover, constant in testing what he buys; in subjecting it to the most careful comparisons; in discovering in every intelligent and practical way its utility and value. These experiments will not be matters of accidental occurrence, but will be carried on systematically from day to day, the same processes being observed over and over again with the same classes of material. This will be especially the case in regard to oils, varnishes, iron, wheels, axles, and kindred articles, the quality of which is so important. Upon some roads the value of these tests is exaggerated; they remove the operations of railroads

from the domain of practical business to the laboratory of a chemist; make them depend more upon theoretical demonstration than practical utility; make formulas superior to the experiences of men, or the established value of articles; put the manufacturer of half a century of honest practice and laborious experiments on the same plane with the novice without experience or history; make the crucible superior to the furnace; make trade-marks the football of professors, and experience the servant of theoretical speculations. However, within proper limits, a laboratory is necessary to every railroad company; but its manager must act in harmony with demonstrated experiences; in harmony with his natural ally and protector, the operating officer. If he does not, injudicious practices will grow up and antagonisms be engendered that will destroy the purpose this auxiliary force is so admirably intended to serve.

At one time, more or less apprehension existed as to the disposition of those who purchased supplies to take advantage of their opportunities to aggrandize themselves. There was, undoubtedly, some cause for this suspicion in the early history of railroads, but it was neither general nor aggravated. Mankind is not now, nor ever has been, dishonest. Moreover, those who purchase railway supplies are too intelligent not to know that corrupt practices, like curses, come home to roost. Isolated offenses may escape notice or permit restitution, but continued disregard of the ethics

of society cannot be remedied or long concealed. Those who practice them are at the mercy of the crowd, and their downfall is only a question of days or months.

The uppermost thought in selecting a purchasing agent should be to choose a good business man of unblemished character. The longer a person thus selected exercises the office, the greater his value and the more confirmed his habits of honesty. The importance of the office of purchasing agent is not so generally recognized as it would be if we could test the work by its results, as we can in many other departments. The subtleties of buying and selling are so little known that skill therein is not always appreciated. The operating officer makes requisition for what he wants, and the purchasing agent is supposed to go into the market and buy at the lowest figure. The acumen that he exercises is something about which his brother officers know very little. The more the importance of the office is known, the more highly esteemed it will be and the more generously its occupant will be rewarded. Not only will he receive a salary commensurate with his services, but when no longer able to work, he will be granted a pension, a crust to live on when old. The suggestion of a pension I know will make the cuticle of the average American harden, and I think I can hear him gently inveighing against the effete practices of Europe. Vain fear! We think ourselves overcrafty in such matters. We are not, however,

as wise as the people of older countries in such matters. We are young and provincial. We will improve! We have been brought up to see men filling positions of trust thrown off when no longer capable of good work, as we would discard a paper collar or a worn-out pair of stockings. This is the policy of the Republic—glorious with all its faults; the policy of its citizens. It is the policy of ignorance, of indifference, of present greed. We practice it and advocate it because it has been practiced and is practiced. Its lack of wisdom will eventually be understood. We shall sooner or later recognize that it is cheaper and wiser to pension a man during the short remainder of a broken life than to make frequent changes in his office or subject him to temptation. The practice of pensioning men who fill positions of trust similar to that of a purchasing agent would prove valuable in many ways. It would enable governments and railway companies to hire men at lower rates and ensure their honesty when hired. Men do not steal simply that they may acquire money, but to lessen the probability of coming want. Once this apprehension is removed, the probability of their stealing becomes infinitesimal; without it, the possibility becomes a probability, as the history of office holding abundantly demonstrates. The experiences of England were not different from those we are passing through in the United States, but the mistake was seen and corrected, and she has been rewarded by three-quarters of

a century of efficiency and honest practice. We use a man in his prime, suck him dry as we would an orange, and throw him away; we pay him only reasonable wages when he works, and kick him out as we would a tramp, when he grows old. Thus our office holders come and go in endless procession, but, like avenging spirits, eat up the vitals of those who thus make them the creatures of their short sighted policy.

The purchasing agent of railway companies is required to be a man of incorruptible honesty. He who does not possess this quality in its highest sense is unfit to fill the office. Entrusted with the purchase and sale of supplies, his fidelity must be above question, his integrity above reproach. He must not only be honest, but must seem to be honest, lest his actions and language be misconstrued. Every quality of strength and weakness inherited by man will be played upon to seduce him from the line of honest dealing; his cupidity, vanity, love of social recognition, desire to be esteemed, gratitude, friendship, family relations, will, each and all, be made to contribute to his downfall if he does not possess wisdom and strength of character to resist temptation.

The purchasing agent must possess the instinct for trade peculiar to people actively engaged in mercantile pursuits. His duties compel him to the greatest activity. He must be personally familiar with the dealers and markets. He must visit in person the shops and storehouses

of those who have the wares he seeks. It is only by continual intercourse with dealers and painstaking investigations that he can hope to purchase the greatest quantity for the least money; to buy where he can buy the cheapest; to sell where he can sell best. Charged with the duty of supplying the material required in active operations, he must keep himself advised in advance of the probable wants of his company. In furtherance of this, careful estimates must be made, far in advance, of probable wants, and provision made for supplying the same. This is especially true of such articles as timber, ties and rails. In inviting bids for supplies the purchasing agent gives the greatest possible publicity to his wants and exercises frankness and fairness in awarding his contracts, lest he may lose the confidence of those with whom he deals. It is the practice of careful purchasing agents to invite bids for all important articles of material they buy. In this way the extent of their purchases and the value of their trade, coupled with the desire of merchants to sell, afford them the best possible market.

The duties of the purchasing agent necessitate perspicuity, untiring energy, great native sagacity. As a rule, his responsibility should terminate with the purchase or sale of supplies. A proper application of the eternal fitness of things requires that the auditing of his accounts, like those of other officers, should be performed by an independent department. Material should be

received and inspected by an officer not in any way responsible for its purchase or character. The same general rule holds good in regard to material sold; the custodian of material should not dispose of it except under orders from others. The efficiency of the service cannot but be enhanced by precautions of this nature. However, ends may be achieved in many different ways; and it is probable the accounts of the official who buys and sells material may be effectively audited, if circumstances should require it, even in those cases where he has immediate charge of the material he buys and sells.

The custom observed in the United States army in regard to the purchase and care of material is interesting and instructive. At all military posts the rules require a board of officers to examine and receive supplies purchased by quartermasters. No purchasing officer, no matter how great his rank, is permitted to receive the supplies he buys. This looks like an unnecessary precaution, considering the high standing and character of the men. Yet the rule is insisted upon with punctilious exactness. Not only here, but in every field the government is particular to surround those who purchase and handle its supplies with checks and safeguards. It does this, not because it distrusts their honesty, but to strengthen them in correct methods. These safeguards are never, either openly or covertly, evaded by the officers they affect. On the contrary, they are rigidly insisted upon by them,

as affording them protection from imposition and unjust suspicion.

In reference to the organization of the purchasing agent's office, he requires a corps of able and trustworthy assistants—men who, like himself, exercise their ingenuity and talent to the utmost to protect and further the interests of their employer. The most consummate skill and talent upon his part will not avail without this co-operation.

The duties of the purchasing agent vary greatly with different corporations. It is probable, however, that as the government of such properties conforms more and more to scientific methods, his duties, in common with those of other officers, will be more definitely fixed, and will be such as to secure efficiency and trustworthiness under all the changing conditions of time and men.

CHAPTER XX.

THE ACCOUNTING OFFICER AND HIS DUTIES.*

The evolution of railway practice in America is nowhere better illustrated than in the accounting department. In early days there was no such department. The accounts were kept in the various departments in which the things they treated of originated. These offices audited the returns and reported the result to a general bookkeeper. The freight accounts were kept in the general freight office; ticket accounts in the general ticket office; expenditures in the offices of superintendents, civil engineers, roadmasters, master mechanics and others. The heads of the departments, having matters of greater consequence to look after, gave the accounts little or no attention. Consequently, little or no improvement was made. Confusion reigned, irresponsibility was common and delinquencies frequent and startling. When a fiduciary agent proved

*I do not attempt to do more in this chapter than explain the principles and general practices that underlie the duties of the accounting officer. For practical knowledge in regard to such matters I must refer the reader to those books that refer more particularly to fiscal affairs, such as "Passenger, Baggage and Mail Service," "Freight Business and Affairs," "Disbursements of Railways," "Principles Governing Collection of Revenue," "General Fiscal Affairs" and "Fiscal Duties of Agents and Conductors."

unfaithful, those who should have prevented the scandal excused themselves on the ground that they knew nothing about accounts, had no taste for them, and lacked time to look after such matters. This was true. The nearest approach to an accounting officer was the general bookkeeper. He entered the results submitted by the different departments, but knew nothing about the technicalities of railway accounts. He was simply a double entry bookkeeper and his knowledge such as the bookkeepers of merchants and bankers possess. Such a state of affairs could not last. The loose practices it engendered, caused by a lack of concerted effort, technical knowledge and definite responsibility, alarmed both owners and managers. The result was the creation of the accounting department. The first head of this department was the general bookkeeper referred to. Notwithstanding this, it heralded a great advance because responsibility was secured. But the situation was far from answering the requirements of the case. Railroads need bookkeepers familiar with the technicalities of day book, cash book, journal, ledger and auxiliary records, but in addition to this, they need an accounting officer who possesses an accurate knowledge of the peculiar accounts of railroads. These accounts are different from all others. No one possessed this knowledge at the start. It was necessary to educate men. The process was tedious and required time. Moreover, the situation was aggravated by the opposition that the

concentration of accounts in one department elicited. Those previously in charge of such matters, while they could not give the subject attention or accept responsibility, were yet reluctant to see the accounts transferred to another department. This greatly embarrassed the accounting officer and involved him in many petty troubles that his associates were happily free from. However, the necessity and value of the accounting department more and more impressed itself upon owners and managers, so that in time it became a firmly established fact. Its importance will not grow less with the lapse of time—on the contrary, it will grow greater. It affords the only authentic means owners and managers have of ascertaining results. It is the only department that has the time and skill to enforce faithfulness and efficiency in the collection and disbursement of railway revenue. A railway or great corporation cannot be effectively managed without an efficient accounting department. Of this there is now no question.

The duties of accounting officers in England are not noticeably different from those in America. There, however, they have the title of accountants. The official known as auditor in England is different from our auditor. He is not in the permanent service of the company whose accounts he audits. He is engaged merely to examine the accounts at the time of closing the books. His report is embodied in the annual or semi-annual statement of the company. It is

for the directors a certificate of good character, or *vice versa*. The man who makes it is appointed by the stockholders. Frequently two act in conjunction in auditing the accounts of a company. Such officials are men of reputable character, experienced and skillful. They are licensed by the state. We have officials in this country corresponding to them. They form in Great Britain a guild, and each member has a certificate setting forth his skill and trustworthiness as a public auditor of accounts. They are supposed to be disinterested and impartial. There can be no doubt of the value of their services as an auxiliary. They audit the accounts of the management so far as they can in the limited time allowed. A real audit requires that the work should be gone over in detail, item by item. This it is, of course, impossible for the English public auditor to do. But he can go over the results and examine them with more or less thoroughness and certify to the fact. This he does. The service is a valuable one, but its value should not be overestimated. The real protection of the stockholder and the public in England and elsewhere must lie in the accounting officer. If he is inefficient, is easily influenced, is a creature simply, no one can prevent his manipulation of the returns in the interest of those he serves, nor can it be discovered except after months of labor, amounting practically to a rewriting of the company's accounts, a thing impossible. The most that the public auditor can do is to examine the books and report

that he finds certain figures thereon; that they are apparently authentic. But whether they are true or false he cannot tell absolutely. Reliance must consequently be placed upon the honesty and fidelity of the accounting officer in charge. He must, because of this, be a man worthy of being trusted. This fact cannot be too fully impressed upon the minds of owners and investors. If they do not wish to be deceived through him, they must take necessary measures to prevent his being suborned.

The accounting department of railroads compares favorably in its work with other departments. In the past, however, because of division of responsibility and lack of knowledge, as already noticed, it was grossly inefficient. Rude appliances, adopted hastily and by unskilled men, were used; they were added to from time to time by devices equally rude. Emergencies were met by the accountant in charge with devices of his own. In many respects these devices served an admirable purpose. They tested the mettle and resources of those in charge constantly and to the utmost. They resulted in many valuable discoveries, while they strengthened the character of those in charge of accounts. This is the best view of the subject. However, the ability of accountants to compass within themselves every want, while it benefited them in one direction, injured them in another. While it made them self contained, it also made them egotistical; while it strengthened their inventive

genius, it made them impatient of suggestions from others; while it stimulated their interest, it lessened their ability to benefit by the knowledge of others. They did not generally recognize either the necessity or desirability of knowing what others were doing; what was best, cheapest, most effective. This was a great drawback, both to the accounting officer and his company. It is hardly possible for a similar state of affairs to exist in any other department of railway service. Master mechanics, car builders, superintendents, track officials and other officers of railroads are compelled, and have been from the start, to keep themselves advised of what was going on upon other roads, to assimilate their practices thereto. In this way railways have, collectively, received from the start the benefit of individual discoveries. But in the case of accounts, if a valuable device was discovered by an accountant it was not known, except by accident, beyond the purlieus of the company using it. Others were loath to adopt it because of their peculiar methods; its use, moreover, would seem to lessen the importance of the accounting officer adopting it; to make him second to someone else. This he resented. The situation was unfortunate. It not only prevented general diffusion of knowledge, but lessened the sympathies of accounting officers for each other. It made them, like all isolated people, contracted in their views and indifferent to or impatient of the views of others. However, this was not universally the

case. More or less inquiry was going on all the time, in regard to forms and methods. But the practice was not general and did not meet with general sympathy. Each company worshipped its own fetich. This will always be more or less the case. A break, however, was made in the custom of isolation. Accounting officers very generally recognize the necessity of better acquaintance with the practices of their neighbors; of a comparison of views; of adopting the best appliances; of replacing old and rude customs with others more in accord with scientific practices. This feeling gave birth in America to the Association of American Railway Accounting Officers—an association not designed to enforce specific things, but to ascertain the views and practices of accounting officers generally in regard to matters affecting the accounts of railroads. Much good has grown out of it. Comparison of views and methods cannot but be beneficial; we cannot tell whether what we do is good or not without knowing what our neighbors are doing.

The devices used in connection with the accounts and financial affairs of railroads, whereby business is facilitated and expenses lessened, are equal to the combined devices of all other departments, so far as numbers are concerned. If the old-fashioned methods of merchants and manufacturers were used by the accounting officers of railroads, the revenues of these properties now divided among stockholders would, in the

majority of cases, be required to meet the expenses of accounting. This statement may seem like an exaggeration, but it is not. It affords those not versed in such matters some idea of the value of the simplifying and cheapening processes that have been introduced by railroad accountants from time to time, of which railway owners and managers have known little or nothing. It is impossible that they should. To understand the forms and accounts of a railroad requires that they should be studied—not cursorily and occasionally, but constantly. As no one can give this time except accountants, it follows that they only understand them.

Constant progress is being made in cheapening and facilitating railway accounts; in making them conform to the means of railroads; in evolving results quickly and cheaply; in bringing them within the easy comprehension of those who compile them. The progress that has been made I venture to predict is small compared with what will be accomplished in the future, first by comparison of views, and second, by the introduction into the department of men of more commanding talent. Formerly the accounting department was compelled to content itself with the cast off clothing of other fields of endeavor. If a man failed elsewhere, yet had some influential friend in the management, he was made treasurer or accounting officer. Broken down merchants and bankers were thought to be especially valuable material for positions of this kind because of their

knowledge of human nature and familiarity with bookkeeping. It is hardly possible to conceive of anything more absurd; of a practice more pernicious. We cannot estimate the losses the practice engendered. As well might a blind man act as guide or watchman. Accounting officers of railroads require as much preparatory training as a good watchmaker, civil engineer, or lawyer. The time to learn the business, moreover, is when they are young, elastic, receptive. In order to understand the accounts of railroads one must commence at the beginning, at the initial point. The subject is too vast to be comprehended in any other way. Without such preparatory training and knowledge an accounting officer is simply an automaton, the creature of his clerks. He cannot understand the rudimentary principles of accounts singly or collectively; cannot understand the significance of a particular thing or its relation to other things. This fact is as apparent to those who understand the subject as that two and two make four. It will in time become apparent to those who own and manage railroads.

The growth of corporate life has elevated the handling of accounts from a petty vocation to an active and progressive science; this science is a part of corporate life, and without it that life cannot be perpetuated or carried on even momentarily with safety.

No man has ever yet been able to say with truth that he had fathomed the intricacies of railway management so that he had nothing

further to learn. It is a science, and each of its branches possesses problems peculiar to itself, requiring for their elucidation years of thoughtful study and practical acquaintance; and much of this knowledge, when acquired at the expense of so much time and patience, cannot be taught or explained. Like the idioms of a language, it permeates the intelligence of the student, but can only be made partly intelligible to those who seek information through him. The organization of many railroads is exceedingly crude; the relations the several departments bear to each other ill defined. In such cases power flows with irresistible force into the hands of the official who possesses arbitrary authority over the greatest number. It is the tendency of power so formed to destroy or weaken salutary checks and safeguards. The strongest survives, not the fittest, for all are alike necessary to a healthy organization.

To insure faithfulness and efficiency in the government of corporations, it is necessary to secure authentic information in regard to the acts of each department of the service. To insure this, checks and safeguards are necessary; these must be arranged with the utmost nicety and persevered in consistently and firmly under every condition. Unless this is done responsibility cannot be enforced. Managers must know what their subordinates are doing; owners must know what their managers are doing. Herein lies the essence of efficiency in corporate management. Safe-

guards intended to secure these results must be carefully considered and wisely enforced. One of these safeguards, and the greatest, is the accounting department. Here results are summed up and focused, and if the work is performed properly and conscientiously, managers will be able to exercise intelligent supervision over their subordinates and owners will be able to exercise like supervision over all. The value of this safeguard does not need illustration. It is apparent at a glance.

Upon every railway a large percentage of the most intelligent and enterprising portion of the force is engaged, more or less, upon duties of a clerical nature. We find these clerks at every station, in each ticket office, at the shops, upon trains, in department offices, and at headquarters. In all these places armies of them are actively employed in connection with the accounts, many being engaged wholly with such duties, while others are thus occupied for a considerable portion of the day.

The simplest system of accounts that can be devised is elaborate and complicated. Necessarily so. In order to secure a high degree of efficiency the officer in charge of accounts should have charge of everything that pertains thereto, or that may be necessary to verify returns. He must not only be able to designate what information is needed, but must have means of assuring himself that the information is full, true and authentic. This involves a supervisory inspection

over the various offices in which the accounts originate. For instance, in order to enable him to know that the account of material disbursed he enters upon his books is authentic, he must have means of verifying such returns. This requires that those who have charge of such disbursements should be subordinate to him or subject to his orders, or that he should, through inspectors, make thorough examination of their accounts. This is also true of disbursements for labor. He must know that disbursements are as stated; also, that they have been charged under the proper heads. Unless he knows this he is acting mechanically, and the results he embodies on his books may or may not be true. If not intentionally untrue, they will be inaccurate, because accuracy requires that they should be compiled according to prescribed rules under the supervision of a disinterested and skillful person. The accounting officer must also have access to every species of information relating to receipts. He must not only have returns thereof, but must be able to verify such returns, item by item; must know that nothing is omitted, nothing incorrectly stated.

These varied duties involve a comprehensive supervisory power over all matters relating to accounts.

The number and character of assistants the accounting officer requires will depend upon the nature and extent of the work, but in any event they must be skilled in the technicalities of their

duties. He will require a particular corps of workers devoted to passenger receipts; another to freight receipts; another to expenditures; another to bookkeeping; another to inspection work at stations and elsewhere. If the accounting officer has supervision over both the accounts and local finances, as is sometimes the case, he will require on his staff such cashiers, clerks and paymasters as may be necessary to perform the work.

It is of the greatest importance that those in charge of the various bureaus of the accounting department should possess especial fitness for their work. They must be skilled by long years of experience; must know the scope, possibilities and limitations of accounts. They must also be familiar with the methods of other companies, so that by comparison and otherwise they may be able to determine what is best.

No officer of a railroad, it may be said, is more dependent upon his assistants than the accounting officer, and no one more requires capable and trustworthy men than he. Without them he will be without arms—without ability to supervise and execute. This is, however, true of every department of a railroad. It illustrates the necessity of building up the service in this direction on an intelligent and permanent basis.

One of the duties of the accounting officer is to make frequent exhibits of the affairs of the company; such statements as are necessary to a full, true and accurate understanding of its business and property. These returns are the mirror in

which is reflected to owners and managers the operations of the property, in detail and in gross; in which they may see the route they are following; the destination they are approaching. The importance of such exhibits can hardly be estimated, in the case of properties so large as not to be within the ken of a particular man from hour to hour, or that are managed by agents.

The chief of the accounting department has, in many instances, the title of a vice-president; the rule is a good one. In many cases, however, the title is that of auditor or comptroller. All returns are made to the accounting department, and are there examined, audited and spread upon the company's books.

One of the duties of the accounting officer is to see that the receipts reach the treasury promptly and fully, and that all payments made are in due form and charged to the proper account. It is the general custom to have an independent officer in charge of the local finances; he receives the cash and pays the bills upon approved vouchers. He is sometimes called the local treasurer. The office is a responsible one. It is the duty of the accounting officer, however, to see that receipts, disbursements and balances accord with the facts; he audits the accounts of all who handle the cash or property of the company.

It is the custom of some companies to give a particular general officer supervision over both the accounts and the cash. This concentration

is thought to give the person in charge a power not otherwise obtainable, yet of the greatest value to his company; a power that enforces respect and observance of needed regulations from associate officers.

The man who handles the cash is always potential. The position of accountant alone does not appeal to men's sensibilities; it lacks *éclat.* But such an officer may, if he possesses ability and courage, and has the ear of the directory, be able to enforce respect for his position; the task, however, is a very difficult one. If he lacks these prime requisites, he will quickly sink to the level of a clerk. Appliances necessary to a trustworthy and complete discharge of his duties will be denied him, or their functions suspended or diverted. This will be done in the majority of cases without direct intention upon the part of anyone. His prerogatives will simply waste away for want of cohesive power. It is believed to be impossible by many for an accounting officer, pure and simple, to cope with the strong, active and aggressive officers surrounding him, who control the business of the corporation, distribute its patronage and disburse its money. With the duty of treasurer added, the task is simple. Unless the accounting officer is respected in his office, he is unable to fulfill one of its principal functions, namely, that of auditing the accounts of the management. To do this effectively he must be the equal, in some respects, of those whose accounts he audits.

In the early history of railroads it was thought necessary to have separate departments look after the accounts and cash respectively; that those in charge of the accounts would act as a check upon the treasurer, and *vice versa.* This view of the matter was correct. It was, however, based upon the idea that the chief purpose of accounts was to prevent the treasurer from stealing. This is one of the least important of their purposes. Their greatest value is to audit the general affairs of a company; the affairs of managers as well as cashiers. Without this audit, corporations would collapse like a cracked balloon.

The presence of a general accounting officer does not preclude an independent head for the treasury department. Where the two are distinct each has his own assistants and bureaus. A treasurer is needed upon every road. He need not necessarily be skilled in accounts. But the accounting officer must be an expert, a practical accountant, a man familiar with all the ramifications of railways; an adept, able to plan and direct as well as to judge. The fact that a particular officer has charge of both the accounts and finances does not preclude an easy and exhaustive check upon the office, and such a check should be enforced in every instance.

Upon the accounting officer, whoever he may be, devolves the difficult task of surrounding receipts and disbursements with adequate safeguards. To accomplish this requires methods of

accounting so easily understood as to come within the scope of ordinary comprehension, but so full and accurate as to prevent loss or misappropriation. They must be such as not to sap the resources of a company, but yet afford an intelligent account of its business; so ample as to guard against all the common mishaps that attend the conduct of an extended business carried on by hired agents. They must be organized with a view to attain practical results in a simple, straightforward manner, carefully eschewing everything that is merely ornamental, or that has as an object, or accessory, the accomplishment of purely theoretical ideas. The accounting officer of a railroad has constantly to keep in mind this important truth, namely, that every cent locked up in clerical work, books, or blanks, beyond what is necessary to accuracy and fullness of accounts, is money sunk in a bottomless pit; a detriment both to the financial interests and the morale of his company.

In devising methods of accounting designed to secure authentic information in regard to corporate affairs, returns must be verified by concurrent evidence; by corresponding statements from other and independent sources. If this is done, omissions and inaccuracies, whether intentional or otherwise, cannot be concealed without collusion, a thing not likely to occur if proper precautions are observed. Herein lies the secret of corporate accounting, and the skill displayed is the test of fitness. The principle that should be

observed in organizing and managing corporations generally, namely, independent but concurrent action, should be applied to accounts with remorseless rigor.

The business of railroads will be facilitated if the accounting officer is permitted discretion within just and proper bounds. He should have general supervision over his department, and, under proper and necessary restrictions, the right to appoint and remove his subordinates. He should also have the power to compel the suspension or retirement from the service of fiduciary agents who prove unfaithful to their trust. The right to hire their successors in office is not necessary to the efficient conduct of the accounting department, and may therefore be left to the discretion of the operating department.

Men frequently creep into the service of railroads who are unfit, and when the character or antecedents of an appointee are such as to point him out as unworthy of trust, he should at once be suspended upon the facts being made known to the appointing power. There can be no such thing as reliability where such precautions are not enforced.

Whoever is responsible for the collection of the revenue of a company, or the handling of its supplies, must have the power to enforce the removal of unfit persons. To those not familiar with the practical operations of corporations this statement may seem superfluous. But it is not. It will sometimes require the most strenuous

efforts to secure the removal of unfit men or the obedience of others. This will not arise from a disposition to maintain corrupt or disobedient employes, but because the operating officer and the accountant view men from a different standpoint. The former's estimate of an employe is based on his facility in procuring or handling business; the latter's upon his trustworthiness as a fiduciary agent. An employe that may be highly esteemed by one may not answer at all for the other.

It would hardly be possible to compute the defalcations and other losses that railway companies have suffered because of the neglect of operating officers to act upon the suggestions of the accounting officer in reference to those whom he has found to be untrustworthy. This lack of co-operation grows less and less each year; every day brings the accounting and operating departments into better accord; makes them more appreciative of each other's duties and worth.

To those familiar with such matters it will not require any argument to prove that the accounting officer should be experienced and capable. His duties bring him into contact with the officers of other departments. They one and all come to him for advice in matters relating to accounts. He must be experienced and capable of imparting information, otherwise two of his functions, those of adviser and arbiter, fall to the ground. He must be familiar with both revenue and disbursement accounts; with the collection of

receipts, the payment of bills, the handling of supplies, the keeping of the time of men, and so on. The field is a wide one. The intimate relations he sustains to other officers render it important that he should possess the qualities that enable men to act with their fellows.

Upon many lines no bills are paid until formally approved by the accounting officer; upon others the procedure is not so formal. However, no bill can be paid until it has been entered in the accounting department. The scrutiny it thus receives serves in a measure as an audit. But this would not be sufficient in itself. Someone must be clothed with the specific duty of auditing accounts for payment. Sometimes this duty is performed by one officer, sometimes by another; frequently the chief manager performs it; in other cases the duty is assigned to a subordinate officer; upon whomsoever it falls, the responsibility is a most exacting one, and requires for its faithful performance the highest fidelity and business acumen and skill. Webster tells us that an auditor is "a person appointed and authorized to audit and examine an account or accounts, compare the charges with the vouchers, examine the parties and witnesses, allow or reject charges and state the balance." No one can properly audit accounts without this authority. It should be possessed by the accounting officers of railroads in its fullest extent. They should not only have power to examine the accounts of officials, but power to make personal

inquiries in regard to the purpose, authenticity and necessity of such accounts.

The necessity of having the affairs of the various departments of a railroad corporation audited by an independent and co-ordinate department was first strenuously advocated by the author of this volume prior to 1870. The practice is now generally recognized by enlightened governments, whether public or private. It is the method of procedure enforced by our general government. The accounting officer is entrusted with the supervision of the accounts of all who handle money or supplies. In each department of the government he has an auditor with a corps of assistants whose duty it is to look after the trust reposed in such department. In all departments, save the treasury, the handling of money is an incident only. In the latter it is the principal business. It supplies money to each department on requisitions. Railroad companies call them vouchers. After issuing the money on the requisition of a department, the treasury department follows it up to see that it is properly used. This duty is facilitated by requiring every official to make returns of receipts and disbursements to the auditor of the treasury for the department in which he is located. The books of the treasury show where, by whom and for what purpose money is collected; also where, to whom, and for what purpose money is disbursed. From this universal knowledge the function of the secretary of the treasury as auditor of every department

of the government is made effective. His authority is commensurate with his responsibility and the gravity of the service. The question suggests itself, why did not the government establish a bookkeeping department, pure and simple, to audit its accounts and look after its receipts and disbursements? The answer is, because such a department, possessing only abstract duties and clerical habits, could not make its authority respected. Instead of being able to enforce responsibility throughout the various departments and bureaus of the government, it would have been ignored or evaded. What is true of the government is true of all great corporations. The accounting department needs the invigorating and strengthening association that possession of the "strong box" gives it; something potential, that cannot be evaded; that comes within the easy comprehension and experience of every man; that exacts from him compliance with certain rules and regulations if he would get that which belongs to him.

The accounting department, after it had been organized, lacked continuity and coherency. It was not scientifically constructed. This is still the case in many instances. A minute examination to-day would discover many departments where there was no recognized head; others where the head possessed only nominal authority, or was surrounded with more or less avowed hostility; we should find undue elaboration of accounts on one road, lack of elaboration on

another. Wherever authority was divided, we should find lack of harmonious action, heightened expense and lessened efficiency; we should find that responsibility was lost in a maze of uncertainty and strife; we should find much duplication of work, details transcribed and retranscribed; we should find that defalcations and similar mishaps, instead of being unfrequent, were matters of common occurrence. I do not attempt to elaborate the evils that attend a division of authority in the accounting department. To hint at them is enough. Division of authority is equally hurtful in other departments of a railway. It everywhere entails loss of business and heightens expense. No one can estimate accurately the extent of the evil. Experts only can form an intelligent conjecture. It manifests itself most strikingly in extravagance and relative increase of the force at headquarters, stations, shops, storehouses, offices, along the line, wherever, in fact, men are employed.

Whenever the accounting officer is denied supervisory power his hands are tied; he is the creature of circumstances stronger than himself. But it must not be assumed that the chief manager is to blame. On the contrary, he may not be at fault at all in the matter. There are so many wheels within wheels in a great corporation that no one can fix responsibility without minute practical enquiry. The service is made up of so many kinds of men that their force and relation to each other must be ascertained before coming

to a conclusion. However, the service of railroads, while it is in many cases still imperfect, is all the time growing better; each day it is being placed on a higher plane; each day attracts to it better men; each day adds to the good and sloughs off the bad. But the advance is not relatively the same on all roads; upon some it is rapid; upon others slow. It depends upon the intelligence and conscientiousness of managers and the interest of owners.*

The difference between a great man and a little man is nowhere more strikingly apparent than in the management of a railway. The situation requires the former. A contracted man in such an office is a pitiful spectacle. A fly revolving on a wheel, carried along, dizzy, bedraggled, alone of all the world unconscious of its impotence. Fortunately, such men no longer fill this important place, or only rarely. They are, however, still to be met with in minor offices. But they do little harm here, except to retard better men. There is, however, a type, a species of parasite, that infests the subordinate offices of corporations. It is much more harmful than the fool; it is the man of all work, the tool of those who conspire in the third person; a man of

* What I have to say in regard to the principles that should govern the organization of the accounting department and other departments of a railway requires to be constantly reiterated, constantly kept before us, until it becomes a part of the written and unwritten law of every corporation, for the reason that the tendency to disregard it is ever present, ever threatening.

talent—plausible, oily, and popular with the superficial; a courtier, skillful in intrigue; a scavenger with the habits of a mole; a tattler and backbiter; a man full of smiles for favorites and baleful suggestions for those who are not favorites; secretive, timid, irascible, lazy, sly; a mean man, of jealous disposition, ambitious without reason, tenacious of place, *passé*, living on with no good purpose; the kind of a man Thaddeus Stevens referred to when he said he was being "nibbled to death by pismires." No one has ever occupied official position on a railroad without feeling the sting of this pest.

Every company possesses a system of accounts peculiar to itself. Generally speaking, much intelligent thought has been given it and great advances have been made. In isolated cases, however, old and obsolete practices are still obstinately adhered to, and ever will be. Where this is so, it is needless to say that the accounting is poor. In some instances there undoubtedly exists a fixed purpose upon the part of the accounting officer to mystify the processes by which results are arrived at. Not that there is anything to be covered up, but because of a fear on his part that full and clear knowledge will render his services less valuable. He dreads competition. The key to the labyrinth he carefully conceals. Such methods of accounting cannot be dignified by the name of systems. They are simply makeshifts, without unity or coherency, the result of spasmodic effort, ill

conceived and still more ill executed. Now, while there will doubtless always be cases of this kind, they will decrease rather than increase in the future. Already the old-fashioned accountants and bookkeepers who knew nothing about railroad accounts in the first place, and cared not to be taught, have died off. Clear headed, experienced and technical men have taken their places.

The accounting officer should have such undisputed control over the accounts as to be able to mould them to his will; to make them thoroughly homogeneous and effective in application; a means at once of enlightenment and protection. This will ultimately be the case. Accounting officers will more and more be allowed authority and discretion, and in the end a corps of capable, educated men will grow up in the accounting department equal to those in other fields of industry. From this evolution will arise greater economy in the use of labor and material, greater responsibility and efficiency upon the part of managers and others, and cheaper and better methods of accounting.

Systematic education greatly improves the character of men. It is having this effect in the accounting department. Incompetents are everywhere giving place to those who are competent.

Men of high aspirations and lofty intelligence carefully avoid callings that are rude or indefinite; in which success when achieved is

unacknowledged. Heretofore there has been no place for such men in the department of accounts. The necessities of corporations and corporate accounting require that a place should be made for them.

The accounting officer of a corporation should occupy the same relation to other department officers that the secretary of the treasury does to other cabinet officers. The duties that devolve upon the department of accounts in corporate service are highly important and honorable. The faithful collection and disbursement of the fabulous sums of money that pass through the hands of railroad companies invite supervisory direction from men of the highest ability, most resolute purpose and incorruptible honesty. When the vital importance of the subject is understood and the foundation of accounting is made to rest upon well defined principles and methods, men of that character will identify themselves with the business.

No man not schooled in the ramifications of a railway can comprehend the importance to it of a clearly defined and well established system of accounting, under the direction of an officer familiar with the technicalities and subterfuges of corporate accounts. His power to look after the receipts and disbursements must be ample and unquestioned.

Those who employ imperfect methods of accounting oftentimes excuse them on the ground that they are cheap; that the company is poor;

that they show results, which is all that is desired, etc. This is humbug, or the excuse of a fool. Such methods of accounting breed irresponsibility everywhere; the monetary losses and petty acts of infidelity they entail are the least of the evils. Such imperfection in accounting demoralizes officers as well as employes. It makes common what should be uncommon; it breeds dishonesty. The losses of corporations from defalcations should be light. Serious acts of this kind should be rare; where they are not, they indicate either defective accounting, lack of proper government, or failure to exercise care in making appointments.

The office of accountant is rarely sought by active and aggressive young men in new countries. The position is too circumscribed. No entrancing glamour surrounds it; no indefinite possibilities are associated with it. It is without emoluments. An energetic and effective discharge of its duties entails enmities and elicits few friendships. This has been the case heretofore. It will always be the case. The office is one that needs constant strengthening. It has few natural supports, while it has many natural weaknesses.

In one of my books, published many years ago, I pointed out the antagonism that existed between the manager of a railway and the accounting officer. This antagonism is greatly lessened, if not entirely done away with. The duties of the accounting department have since been more

clearly defined and more generally recognized. Its functions were not formerly appreciated. The peculiar facilities that it possesses for enforcing efficiency in the collection and disbursement of money everyone now recognizes.

The accounting officer should not only audit the accounts of those who handle money, but the accounts also of those who have anything to do with revenue or expenditure, or who are in any way responsible therefor. He should, in fact, not only audit the accounts of receiving and disbursing agents, but should also audit the accounts of the management. In order to do this he must possess large discretion. The creature cannot audit the accounts of the master. The accounting officer must, therefore, hold his office under such circumstances as will assure him protection in the discharge of his duty. This fact is each day more generally recognized as we become more familiar with the needs of corporate institutions. Under all proper methods of organization, antagonism between the accounting officer and the manager is impossible, or of so little account as not to require noticing. Great advances have been made in this direction. At one time harmony was the exception rather than the rule. In early days the antagonism that existed between the accounting officer and his associates was so pronounced as to practically annul the usefulness of the former in many cases. The manager, a practical, energetic and aggressive man, saw in the accounting officer only an inquisitive meddler; a natural enemy.

This feeling was heightened by dissimilarity of character, thought and purpose. The two officers were the opposite of each other; one was positive, the other negative; one aggressive, the other passive. While the manager was engaged in the performance of acts that left an impress, that constituted history in fact, and affected the material prosperity of the company in many ways, the accountant performed simply a mechanical *role*—that of transcribing upon his books the acts of others for the information of the owner. That these offices should have been independent of each other from the start, everyone now recognizes. However, such separation is exceedingly difficult to attain, and when attained is difficult to perpetuate. The reason is plain. The manager is all powerful; he is sought after and caressed everywhere. The accounting officer, on the other hand, may be likened unto an obscure scribe, who sits down in the presence of the commander-in-chief to write the history of the battle while yet the smoke of conflict hangs over the field. Such are the relative positions of manager and accounting officer. The latter, wedded to an humble occupation, generally underpaid, patronized by men of consequence, dazzled with the glare and splendor of power round about him, munches his official crust in obscurity, happy if he receive the protection of limb and life. The former, on the other hand, is everywhere courted. He is a potential factor in those things the world concurs in recognizing and hailing as great.

While no particular officer can, it is probable, be said to serve more conscientiously than his fellow, yet each officer is especially concerned in seeing that the work delegated to him is faithfully and effectively performed. He is more interested in it than anyone else can be: thus it is of the greatest consequence to the treasurer that the receipts should be promptly and fully collected. His self respect and standing as an officer require this. A worthless balance is a reproach. If for any reason an employe is unfaithful or withholds collections, the treasurer requires his removal without reference to any efficiency he may possess in some other branch of the service. The operating officer, on the other hand, absorbed in his efforts to secure a good and cheap track, adequate equipment of a creditable character, the rapid and easy movement of trains, is more concerned in the retention of agents capable of aiding him in this direction than he is in securing good clerks or faithful fiduciary agents. Clerical matters are to him of small importance. The arduous nature of his duties makes him impatient of any attempt to change or disturb the machinery by which he conducts affairs and upon the efficacy of which depends his standing. It is a matter of small concern to him whether agents are faithful accountants or not. He, of course, esteems certain general principles to be important in connection with the collecting and remitting of the company's funds; but the literal and exact fulfillment

of definite rules, a disregard of which would involve dismissal without reference to his wishes, is another matter, and one that his habits of life and natural antagonism of character protest against. The likes and dislikes of arbitrary men are the same the world over. While governing others with an iron hand, they one and all protest against any procedure that will make them, in common with others, the creatures of extraneous influences. Nevertheless, in the government of corporations they must acquiesce in personal laws. The duties of one department will oftentimes encroach upon the convenience and duty of another. Thus the needs of the accounting department oftentimes disturb the appliances of the operating officer; increase his burdens by necessitating changes of method and men. While such clashing is to be regretted, it is unavoidable.

Every new force injected into corporate life has to be carefully studied until its character is known; this labor and responsibility fall more heavily upon the operating officer than anyone else, and accounts for his reluctance to dismiss men that he knows to be trustworthy in the evolutions of the physical life of the property, who may be unreliable as fiduciary agents. This fact should be kept in mind by accounting officers. It will make clear to them many things that are otherwise incomprehensible.

In conclusion, it may be said that the accounting officers of railroads cannot know too much

about the cost of accounting at stations and elsewhere. They should not institute a form or method without knowing the expense it entails. Lack of knowledge in this respect is unknown elsewhere in the service. Officers in other departments see at once, either on the pay roll or elsewhere, the effect of their appliances, and are quickly influenced thereby. Many of those in charge of accounts pass their lives in their offices. They do not see the result of their methods. They do not know the cost of what they institute; do not know what is economical, what is extravagant. Such a state of affairs may exist on a railroad without anyone suspecting it. Or, if suspected, criticism is unavailing. What is the remedy? To turn the accounts over to the operating officer? No. It lies in the accounting officer keeping himself advised of the relative cost of methods of accounting; in familiarizing himself with the appliances of other companies; in visiting the stations, shops and offices of his own company; in studying the practical application of his work. Not until he does this will he be able to distinguish an economical from an extravagant system. The operating officer cannot remedy defective methods of accounting; cannot supply lack of experience and wisdom upon the part of the accountant. If allowed to meddle he will not only disturb necessary safeguards, but his methods will be spasmodic, crude, incongruous and unsafe. Besides, the accounts record his acts and are designed to be a check

upon him, as well as upon agents, cashiers, ticket sellers, conductors and others.

The accounts of corporations to be effective must be impersonal. Responsible government cannot be secured without an independent and efficient accounting department; without an impartial agency to transcribe results as they actually occur. This fact is now generally recognized. A separation of the accounting department from the operating department is a necessity of the situation. Only by such separation can the faithfulness of the former and the responsibility of the latter be secured.

CHAPTER XXI.

ORGANIZATION OF DEPARTMENT OF SHOPS AND EQUIPMENT.

The officials in general charge of this department, whatever their titles, constitute a part of the operating force. They look to the procurement of needed facilities and the working and maintenance of the same afterward. They have immediate and direct charge of shops, the machinery therein and the employes connected therewith. They also have the hiring and government of engineers, firemen, and other employes who work about the equipment. Railroad companies also look to them for advice in regard to the location and working of shops, the procurement and care of machinery, the kind of engines and cars that are needed, where they should be stationed, who should have charge of them, the care they shall have, and other matters of a collateral nature.*

* The reader is referred in this connection to the book "*Railway Equipment*" forming one of the series of "THE SCIENCE OF RAILWAYS." It contains an account of the Locomotives and Cars of the world and embraces, among others, a chapter on the Care and Maintenance of Locomotives and Cars and the Arrangement of Railroad Shops and Roundhouses. The reader is also referred to the book containing an account of the duties of Engineers, intended as a Manual for Firemen, forming a part of "THE SCIENCE OF RAILWAYS."

The chief officials of the great branches of the service that make up the department of equipment should be classed among the scientists as well as the great practical business men of the world. This because of the nature and extent of their knowledge. In the early days these officials were simply machinists and carpenters. To-day they are executives and managers and their minds grasp the fundamental, as well as the collateral, ideas of the service. The importance of the department grows in general estimation and each day increases the need of men capable of handling it. This need the great number of ambitious, capable and studious men connected with the department is abundantly capable of supplying.

The organization of the car service branch of the department is along the same lines as that of locomotives. It is in charge of a superintendent, who, if he does not actually buy or build the cars, maintains them after they are procured. The field is a vast one and requires of those in charge great executive ability. This is also true of those in charge of locomotives.*

* In America railway equipment is divided under two heads, locomotives and cars, each branch of the service having a distinct head. That for locomotives is called a superintendent of motive power and machinery or a master mechanic. The official in charge of cars is generally known as the superintendent of cars. The principles and, in the main, the methods which underlie the organization of these two branches of the service are the same and, therefore, I treat them together. The official in charge of locomotives also looks after the shops where they are housed and repaired; the official in charge of cars performs a similar service in regard to such vehicles.

The department of equipment has commercial features of marked significance.

While this is perhaps not always appreciated at its true value to-day, it is much better understood than formerly. This feature is distinct from the routine work of the department and consists in ascertaining the traffic needs of the property and in adapting the equipment and shops accurately thereto. This requires talent of a high order. Thus a shop may be located exactly where it is needed to-day, but it may be impossible to use it next year, except in an unimportant way, without inconvenience and loss. This is true also of equipment, particularly locomotives, the changes herein being rapid and important. Because of this, the officials in charge must be able to adjust themselves to every new condition quickly and without effort.

The duties of those in charge of equipment are so varied that they require great versatility of talent and experience. They must be familiar with all the constructive needs of the service, the location, construction and maintenance of shops and machinery and also the organization and government of the trained mechanics and army of laborers and apprentices which the service requires. The procurement, maintenance and working of equipment involve the kind needed, where it shall be located, how it shall be maintained, who shall work it and the form of government that shall control the whole. The organization, whatever it is, must contemplate

such a division as will enable due attention to be given to every detail, responsibility being placed where it may be exercised with the view to the working of the department in detail and as a whole.

There are the usual gradations of service here as elsewhere, superintendents in general charge, managers in charge of divisions, assistants, subassistants, foremen and others, each located where he may best handle the business assigned him and see that it works in harmony with the whole. Every division of a railroad has its repair shop and roundhouses, and local officials. The latter report to the official above them. The central authority fixes the status of everyone, as it does the forms that shall prevail, the patterns that shall be used, the kind of machinery that shall be worked. The details are left to the local officials.

The tendency in connection with the care and maintenance of equipment is to concentrate responsibility in the hands of particular men in general charge. At one time there were officials on every division of a railroad, each acting more or less independently. The result was unnecessary duplication of shops and machinery, multiplicity of patterns and devices, costly supervision, constant clashing, and tardy and imperfect distribution of the equipment. With concentration of authority and more systematic cooperation, uniformity reigns and devices are made to harmonize over the whole of a property, as new

appliances take the place of the diversified forms which are worn out. This effects a marked saving, not only in the quantity of material to be carried in stock, but also of machinery, superintendence, labor, plant, etc.

Concentration of authority may be said to be absolutely necessary in order to achieve the best results, but co-operative effort must be general, with unity of purpose and careful division of labor. This is true in both the mechanical and constructive branches of the service. The affairs of the department, like other departments of railroads, are too diversified and widely scattered to be looked after in detail by a particular man. He may, with his immediate assistants, watch the whole, but he cannot do more than exercise a general supervision. From him should emanate the principles to be observed and, so far as possible, the practices that are to be carried out in particular instances. Thus, the heads of the machinery and car departments are in a position to enforce standard forms and to gather from those under them the collective wisdom of all in regard to matters relating to the construction, maintenance, care and working of locomotives and cars. The vastness of this field and the information that may be thus gathered cannot be overestimated in value. In this way they will, furthermore, be able to become familiar with the capacities of those connected with the department, either as officials or employes. Those who possess ability in any particular direction will be

able to demonstrate it to their own advantage and to the great profit of the company employing them. Co-operative effort, it is needless to say, will not be confined to the officials of the department of equipment. Suggestions within certain lines, consistent with discipline and due procedure of business will be received, no matter from what source they emanate, and be given the attention that the experience and talent of those offering them justify. This is or should be the rule of observance in every department of the service, the united wisdom and experience of all being greater than that of a part.

The more the subject is studied the more apparent it is that concentration and co-operative effort are necessary to secure reasonable efficiency in the procurement and use of equipment and in its maintenance and care.

The business aspect of the department of equipment is a matter little understood. This is especially true of the machinery branch of the service. The importance and prominence of its technical features are generally known or, at least, are becoming more and more so every day. Those in charge also very generally understand the commercial aspect of the case. They realize that its technical and commercial features go hand in hand and need always to be considered together. The business problem takes into consideration not only the power needed, but what is best suited to accomplish the desired end at the least cost, or rather, with the greatest return in the shape of revenue to the owner.

The outlay of the department of equipment embraces an immense percentage of the total disbursements for construction and operating. Its economies, therefore, are of vital importance.

In the procurement and handling of equipment nothing can be considered apart. Everything must be in due subordination to what is best to further the general interests of a company. Hobbies or prejudices cannot be indulged in here without detriment, any more than they can in relation to the traffic of a road. Shops are built and maintained, engines and cars procured and worked, and employes governed always with the view to the best results as regards revenue. A saving made in the department which would involve a greater outlay in some other branch of the service, would be grossly improper; and herein lies a delicate problem, for there can be no doubt that, however earnestly men may strive for the common good, there is a natural disposition (to be overcome) to grasp at results in connection with the particular department with which they are connected, irrespective of the result to other departments. The overcoming of this diposition requires that officials shall be unselfish and broad in their views; that they may be so, it is necessary they should be wisely governed.

In local details, ultimate results are also to be kept constantly in view. Thus, it cannot be good management to continue to operate locomotives or cars of a certain grade, which, by being

changed or rebuilt, can in the end haul so much greater burden or be so much more economically operated as to justify the alteration, provided, of course, the financial ability of a company permits it.

The problems involved in this connection are much greater on inspection than they seem to be superficially viewed. Thus, the annual outlay for housing and operating a locomotive involves approximately a sum equal to the value of the locomotive itself. Then when we consider in connection with this the tonnage the locomotive should haul to secure the greatest return, all things considered, the business aspect of the problem grows in importance. The locomotive, like the car, is simply an appliance designed to accomplish certain ends, the best under the circumstances that are attainable. Great advances have been made, the result of increased experience and the accessions in this field of labor of men of commanding talent. How to move a given load at the least cost is, in the main, the problem to be solved. Celerity of movement is a factor, but this may be said to be comprised in the other. The equipment is simply a tool to accomplish results, ignorance and prejudice to the contrary notwithstanding. This idea is alone to be considered. In order, however, to accurately determine what is best, we require the aid of statistics. Here, as elsewhere, great advances have been made not only in our ideas of what we need, but how to arrive at such needs. We no longer calculate

the value of an engine and the relative economy of its operation by the number of miles it runs, but by the load it hauls: its ton unit. On this latter the earnings of a company depend, and not on the number of miles an empty engine or train, perhaps half loaded, runs. If an engine cannot show a good record from this point of view, it is lacking in an essential quality, and the problem of those in charge is to determine how to overcome the difficulty. Is it the fault of the engineer, or must the engine be changed or abandoned? Such questions the management has to meet, as it is an axiom in railway service that cost does not increase proportionately with the load hauled. In other words, an engine that can haul the maximum tonnage and make the time required costs less per ton unit than an engine that cannot accomplish this result. Thus, it does not cost any more to house or man a good engine than it does a poor one. Moreover, compared with the service they perform, the supplies they consume respectively (including repairs and fuel) are not proportionate, but altogether in favor, from an economical standpoint, of the better engine. There is also a saving proportionately in original cost, and in so far as this is so, interest charges are reduced. Thus, the whole problem is reduced to the fundamental idea, the capability of locomotives and cars.

The business problems that attend the use of equipment also connect themselves inseparably with the shops. A great field is here afforded

for the display of experience and executive qualities. I do not know that I can do the reader a greater kindness than to quote what Mr. Robert Quayle* has said on this subject: "It is not given to every superintendent of motive power to locate and build up a great plant that shall meet the company's needs. But when such a plant is to be built the same considerations obtain as in the creation of a manufacturing establishment. Most of us, however, find on the roads we serve a more or less complete equipment of roundhouses and shops, with which we must do the best we can. Oftentimes these shops, in their location, size and character of their buildings, are far from being perfect, not necessarily because someone blundered when they were built, but because no one could foresee the extent of the growth of the company's business and the extension of its track and equipment. Most of our large railroad systems have reached their present size by the grouping of small independent lines. This growth not having been contemplated from the start, the original arrangements do not coincide with the needs of the shop system as a whole. The roundhouses also were originally located with reference to the needs of the lines at the time they were built and the practice of having locomotives make average runs of about one hundred miles a day. This practice prevailed until recent years. Every

*A master mechanic of the highest attainments and experience.

roundhouse involves certain fixed expenditures, and the smaller the number of locomotives handled at a given point, the higher the ratio of these expenditures to the total outlay. Then the cost of dispatching and roundhouse labor is not dependent upon the length of the run. Consequently where division terminals can be so changed as to give the locomotive longer runs, roundhouses can be closed, resulting in a considerable reduction in the amount of labor required to handle locomotives at terminals as well as a relative reduction in the cost of labor remaining to be done in the houses retained. This is in addition to the advantage gained in the greater mileage obtained from locomotives by the increased length of run. If we find the number and equipment of shops to be as indicated, a change will be necessary if cost is to be reduced to a minimum. To effect the best results we must have improved machinery and up-to-date methods. But much of the machinery if installed in a small shop would be idle most of the time, so much of the time indeed, that it might not pay to purchase it unless more work could be found for it. To illustrate: Suppose a road finds it has no boiler shop that is properly equipped for economical work. At one of its main shops it takes out antiquated machinery, such as old punches and shears, single spindle post drills, bending rolls operated by hand, etc., and in place of this machinery are installed a powerful punch with throat deep enough to permit reaching the center of the widest sheet to be operated upon, a modern shear, an hydraulic riveting machine with the maximum gap, multiple spindle drills, power bending rolls, an hydraulic flanging machine, and other modern machinery, including traveling cranes. Hand-work under such circumstances will be reduced to a minimum and the shop will be prepared to do the best boiler work with great economy over the old methods. When this is accomplished, it will be found that the shop is capable of doing a large amount of work. It will not pay to improve every boiler shop on the road in this manner, nor will it be necessary. By concentrating the heavy boiler work at a few places the maximum of economy can be obtained with the minimum capital invested in tools. And so we might go through the blacksmith, machine and other shops and find many similar cases where the introduction of improved machinery and methods must go hand in hand with a concentration of the class or classes of work affected thereby. Nothing is more certain than the need of modern methods and first-class machinery in railroad shops; from which it follows that concentration of work must be accomplished, at least to the extent of keeping properly employed this modern and expensive machinery. This leads us to turn our attention to the small shops on the various divisions with a view to deciding how much of the work performed in them can be profitably transferred to the larger and better equipped shops. We may

find that with proper roundhouse facilities for making running repairs, some of them can be closed entirely. In such cases we gain not only the benefit of a lower cost on the work thus transferred to a better equipped shop, but we save in such items as light, heat, power, superintendence, etc. As superintendence itself is a large item amounting to some ten per cent. of the total expenses of the department, the saving in this direction is not inconsiderable. There will still remain, however, numerous shops that must be maintained, in which certain classes of repairs can be as cheaply done as in the main shops. Economy will be increased by taking from them the heaviest class of repair work, and also by relieving them of the manufacturing of standard articles of material. Perhaps I use the word manufacturing unadvisedly, for if each outside shop is allowed to finish all the new parts necessary in the course of its repair work, there will be little manufacturing done. When a locomotive is overhauled, such parts as driving boxes, shoes and wedges, rods, crank pins, cross-heads, etc., need more or less work done upon them to repair the wear, and evidently such work never can be put upon a manufacturing basis. Here and there a new cross-head, crank pin, driving box or other part is needed, but in many shops the number required at any one time is too small to justify the introduction of the labor saving methods that would be possible if they were made in a large quantity.

Evidently, if the main shop undertook to supply these parts in a finished condition to all the outlying shops, they could be made in such quantities as to greatly reduce their cost. This, I believe, is what should be done and to a large extent is usually practiced. The main shops should undertake to make on a large scale as many of the new parts required in repairs over the entire system as conditions will permit, and this work should be done upon a manufacturing basis so far as practicable. By this means the cost is reduced, and there is every incentive to keep on cheapening the work and raising the quality of it by special and ingenious methods. To carry out this policy, two things are necessary: to have standards for the parts of the various locomotives owned by the company, and necessary appropriations for the machinery needed in the work. The appropriations are matters which must be settled by the general management. Without them economies cannot be effected, and it is a matter of regret with every company at times that there is not more money forthcoming."

The constant changes and improvements which occur from year to year in connection with the construction of locomotives and cars have the effect to introduce with each change some new appliance or modify or enlarge an old one. Thus, while the parts that go to make up different locomotives and cars may be alike in many things, there will be radical differences because of lack of uniformity of size or other constructive feat-

ures. For each difference particular patterns must be kept in stock to supply renewals. To overcome these differences, to make all forms alike, is one of the great problems of the service. For in so much as the differences can be reduced, the service is simplified and outlay decreased. Thus, to secure the maximum economy in this respect, to again quote Mr. Quayle, it is necessary to use the same sizes and patterns on as many engines and cars as possible. By so doing, the quantity of stock required to be kept on hand will be less—a most important consideration. To show the need that may exist for standard forms and what can be accomplished, I will quote you a few of the results obtained in connection with the motive power of one company. It reduced to one or two sizes most of the cocks and valves, oil cups, injector checks, glands and all other brass work and small parts. At one time it had one hundred and thirteen different kinds of cabs on its one thousand and ten engines. Now their number has been reduced to nine. Pilots at one time were built of fifteen different heights; now there are but three. The number of kinds and sizes of smoke stacks has been reduced from legion to four. Two patterns of exhaust pipes have replaced forty-five old ones. Ten crosshead patterns take the place of twenty formerly used. Three standard eccentrics take the place of eleven needed heretofore. Sixteen cylinder head casings and seven cylinder head patterns have been discarded, also six steam chests and casings. Six

standard wheel centers now take the place of twenty-two formerly used. And so I might go through the entire list, but those already mentioned are enough to indicate the great saving that can be accomplished both in the stock carried and the cost of production. Not a week passes without seeing more or less of this work accomplished; and yet in it all one must be constantly on the alert for improvements and must not hold these standards too sacred. They too, in time, will have to be discarded if we are to profit by experience. But with both large and small parts reduced to a uniform standard, so far as possible, and with the use of special tools and methods, practically all the small standard parts of engines and cars and many of the large parts as well can be manufactured at one shop. Some roads do nothing but repair work in their shops, but a few undertake to build their own engines and cars. Rebuilding is carried on to some extent in nearly every railroad shop. Where to draw the line in rebuilding, it is difficult to determine. By this term, I do not mean the making of extensive repairs and yet retaining the original design. Thus, most roads find themselves possessed of engines of moderate size, provided with boilers much too small for the cylinders and carrying a low steam pressure. If these engines should be rebuilt and given new boilers, the tractive weight and power would be largely increased by the larger boiler and higher steam pressure. Whether it is advisable to do

this depends upon the service the rebuilt engines are intended for. Perhaps I can best illustrate the manner in which this matter should be viewed by taking actual cases. Thus, we will say a company needs for its passenger service an engine, the equivalent in power of a seventeen-inch engine carrying one hundred and eighty pounds of steam. The seventeen and eighteen-inch engines used by it will not do the work because the boilers are too small, and they only carry one hundred and forty to one hundred and fifty pounds steam pressure. To rebuild one of these seventeen-inch engines, giving it a new boiler, will cost say, forty-five hundred dollars. I believe it will pay to do it if the machinery is heavy enough for the higher pressure, as a new engine for the service required will cost about eight thousand dollars. We save not only the difference in cost, but we have one less small engine on our hands. But suppose we expect to use these rebuilt engines in freight service and have no particular place for them, and only contemplate increasing their capacity by the rebuilding; we would gain about twenty per cent. in power by the change. If the tractive power of the old engine be expressed by the number 100, then three engines rebuilt would have a total tractive power of three hundred and sixty. The cost of rebuilding the three engines would be thirteen thousand and five hundred dollars. Now if we leave the old engines as they are and spend eleven thousand and

five hundred dollars of this money in purchasing a heavy modern freight engine, we will be able to get one with a tractive power represented by one hundred and seventy-five; and we would then have four engines (three old and one new) with a combined tractive power represented by four hundred and seventy-five or an average of 118.75 per engine. If we should break up one of the seventeen-inch engines we would have three engines with a tractive power of three hundred and seventy-five or an average of one hundred and twenty-five. Thus we find that for two thousand dollars less money, we can by purchasing new power and keeping all our old power get almost exactly the same average tractive power as by rebuilding, and that if we would break up one old engine for each new one purchased, the average tractive power of our engines would be considerably increased over what we could obtain by rebuilding. Evidently the figures are against rebuilding except where the rebuilt engines will fit into some particular place, generally in passenger service.

Such is a brief summarization of the equipment department of a railroad. However brief, it is sufficient to indicate the great problems that are involved and along what lines they must be met. Engines and cars are the things that make a railroad possible, are indeed its fundamental features, and so it is borne out in their working that the talent and skill required equal, if they do not exceed, similar requirements of any other department of the service.

CHAPTER XXII.

CLASSIFICATION OF THE OFFICERS AND EMPLOYES OF RAILROADS.

I cannot close this volume, devoted to the Organization of Railroads, more appropriately than by giving a list of the officers and employes. In no other way could I so happily illustrate the extent and universality of the service, or so fully portray the diversity of labor that exists. The list is not complete, or if complete to-day, will not be to-morrow. However, it will for all time comprise the bulk of the service. The number of railroad employes having different kinds of work to do will surprise those who are best informed in regard to such matters. The majority of those named in the list are experts, possessing special knowledge of their business. The extent and variety of the work they perform necessitates the most varied knowledge.

Many railroads employ as high as thirty thousand men. Some exceed this. There is no road so small that it does not require a host of young, able-bodied, alert and talented men. The service of railroads, generally speaking, is such as to require young men in the vigor of manhood. There are very few places that men of decaying faculties can fill. In some departments of the

service a great proportion of skillful men is required, as is the case with equipment. Of course, the extent of a property and the amount of its traffic regulate the number of men. Upon small properties many diversified duties are performed by single persons.

The titles given railroad employes and officers in America our people understand. They do not understand many of those used in Great Britain, any more than the people of that country understand those we use. Each country, upon the introduction of railroads, applied to many of its employes titles then in use. In many cases these titles had little in common with the new order of things. So that it has come about that as the old period grows dim, the titles inherited from it become more and more absurd. Thus when an Englishman speaks of gangers, stokers, guards, plate layers, shunters and pointsmen, we smile. We do not understand what he means. Corresponding titles used in the United States sound equally strange to him.

In reference to the use of titles, it is not a matter of great consequence, perhaps, what they are so long as they are comprehensive; so long as those who use them understand their significance and relation to each other. But it has always seemed to me that we have, in many cases, been at needless pains to restrict ourselves in the selection of titles for officers to those that were the least attractive; that we have gone out of our way to be commonplace: thus, instead of

saying manager general, we say general manager; instead of solicitor general, general solicitor; instead of auditor general, general auditor, and so on. It is not probable that any change will now be made. Force of habit quickly weds us even to an unattractive thing. But I would suggest that in the amiable and generous strife for uniformity and improvement of every kind so noticeable in the United States, a carefully prepared and uniform list of titles for railway officers and employes would be more acceptable to them and of greater value (however slight the real worth) than many other changes we hear about.

The following is a list of the officers and employes of railroads, viz.:

Accountants.
Accountants, car.
Accountants, freight.
Accountants, general.
Accountants, ticket.
Accounting officers.
Agents.
Agents, advertising.
Agents, assistant.
Agents, baggage.
Agents, boat.
Agents, claim.
Agents, commercial.
Agents, contracting.
Agents, dairy freight.
Agents, dock.
Agents, emigrant.
Agents, express.
Agents, freight.
Agents, fuel.
Agents, general baggage.
Agents, general claim.
Agents, general freight.
Agents, general passenger.
Agents, general purchasing.
Agents, general ticket.
Agents, general traveling.
Agents, land.
Agents, live stock.
Agents, loading.
Agents, lost car.
Agents, lost freight and baggage.
Agents, lumber.
Agents, milk.
Agents, news.
Agents, passenger.
Agents, purchasing.
Agents, right of way.
Agents, shipping.
Agents, special.
Agents, tie.
Agents, ticket.
Agents, transfer.
Agents, traveling.
Agents, traveling freight.
Agents, traveling passenger.
Air brake fitters.
Air brake inspectors.
Air hose men.
Apprentices.
Apprentices, car works.

Ash wheelers.
Ashpan cleaners.
Ashpan makers.
Ashpit men.
Attendants, enginehouse.
Attendants, ladies' waiting room.
Attendants, parcel room.
Attendants, station.
Attendants, waiting room.
Auditors.
Auditors, coal traffic.
Auditors, disbursements.
Auditors, expenditures.
Auditors, freight.
Auditors, freight receipts.
Auditors, freight traffic.
Auditors, general.
Auditors, general traveling.
Auditors, labor and material.
Auditors, merchandise.
Auditors, passenger receipts.
Auditors, passenger traffic.
Auditors, receipts.
Auditors, railroad and telegraph companies.
Auditors, station agents and conductors.
Auditors, ticket.
Auditors, traveling.
Axemen.
Axle cutters.
Axle lathemen.
Axle straighteners.
Axle turners.
Axle turners' helpers.
Baggagemasters.
Baggagemasters, assistant.
Baggagemasters' helpers.
Baggagemen.
Baggagemen's helpers.
Ballast measurers.
Battery boys.
Batterymen.
Bell hangers.
Bellringers.
Beltmen.
Berry and fruit delivery men.
Billers.
Billposters.
Blacksmiths.
Blacksmiths' apprentices.
Blacksmiths' helpers.
Blacksmiths' shop boys.
Boiler fitters.
Boiler heaters.
Boiler heaters and wipers.
Boiler washers.
Boiler washers' helpers.
Boilermakers.
Boilermakers' apprentices.
Boilermakers' helpers.
Boilermen.
Boilermen, assistant.
Bolt changers.
Bolt cutters.
Bolt headers.
Bolt heaters.
Bolt repairers.
Bolters.
Boltmakers.
Bookers, freight.
Bookkeepers.
Bookkeepers, general.
Brakemen.
Brakemen, avenue.
Brakemen, coal train.
Brakemen, construction train.
Brakemen, freight.
Brakemen, work train.
Brakemen, freight yard.
Brakemen, gravel train.
Brakemen, head.
Brakemen on pushers.
Brakemen, passenger.
Brakemen, shifting.
Brakemen, suburban.
Brakeman, tipple.
Brakemen, work train.
Brakemen, yard.
Branchmen.
Brassborers.
Brassfinishers.
Brassfinishers' helpers.
Brassmolders.
Brassmolders' apprentices.
Brassmolders' helpers.
Brassturners.
Brassworkers.
Breakers.

Bricklayers.
Bricklayers' helpers.
Bridge hands.
Bridge tenders.
Bridge tenders' helpers.
Bridgemasters.
Bridgemen.
Buggymen.
Cab builders.
Cabinetmakers.
Cabinetmakers' apprentices.
Cabinmen.
Cablemen.
Call boys.
Callers.
Captains of scows.
Captains of watch.
Car builders.
Car builders' helpers.
Car checkers.
Car droppers.
Car markers.
Car recorders.
Car recorders, chief.
Car reporters.
Car tracers.
Car washers.
Carders.
Caretakers.
Carmen.
Carpenters.
Carpenters' apprentices.
Carpenters, bridge.
Carpenters, bridge and building.
Carpenters, car works.
Carpenters, coal car works.
Carpenters, dock.
Carpenters, fence.
Carpenters' helpers.
Carpenters, house.
Carpenters, locomotive works.
Carpenters, machine shop.
Carpenters, machine shop helpers.
Carpenters, passenger car wks.
Carpenters, roundhouse.
Carpenters, shop.
Carpenters, work train.
Carvers.
Carvers' apprentices.
Cashiers.
Cashiers, assistant.
Casting chippers.
Catchers.
Catchers' helpers.
Caulkers.
Chainmen.
Chalkers.
Chargers.
Check boys.
Checkers.
Checkmen.
Chemists.
Chief Accountants.
Cinder cleaners.
City posters.
Civil engineers.
Civil engineers, assistant.
Cleaners.
Cleaners, boiler.
Cleaners, brick.
Cleaners, car.
Cleaners, engine.
Cleaners, grate.
Cleaners, house.
Cleaners, lamp.
Cleaners, office.
Cleaners, pit.
Cleaners, reservoir.
Cleaners, shop.
Cleaners, station.
Cleaners, station and attendants.
Cleaners, waiting room.
Cleaners, yard.
Cleaters.
Clerks, abstract, freight.
Clerks, advance charges, freight
Clerks, baggage.
Clerks, car.
Clerks, check freight.
Clerks, chief, accounting officers'.
Clerks, chief, car accountants'.
Clerks, chief, claim agents'.
Clerks, chief, freight agents'.
Clerks, chief, general freight agents'.

Clerks, chief, general passenger agents'.
Clerks, chief, passenger agents.
Clerks, chief shop.
Clerks, copy.
Clerks, corresponding.
Clerks, coupon ticket, foreign.
Clerks, coupon ticket, local.
Clerks, delivery.
Clerks, demurrage.
Clerks, dock.
Clerks, earnings.
Clerks, entry.
Clerks, expense bill.
Clerks, freight received.
Clerks, fuel.
Clerks, grain.
Clerks, in car.
Clerks, index.
Clerks, in freight.
Clerks, invoice.
Clerks, labor distribution.
Clerks, live stock.
Clerks, locks and seals on cars.
Clerks, locomotive.
Clerks, lumber.
Clerks, mail.
Clerks, material distribution.
Clerks, notice arrival freight.
Clerks, operating and construction accounts.
Clerks, out car.
Clerks, out freight.
Clerks, over and short freight.
Clerks, paymasters'.
Clerks, pool.
Clerks, prepaid freight.
Clerks, rate.
Clerks, receiving.
Clerks, revising.
Clerks, roadmasters'.
Clerks, routing.
Clerks, seal.
Clerks, shipping.
Clerks, shop.
Clerks, station.
Clerks, statistical.
Clerks, storage.
Clerks, superintendents'.
Clerks, supply.
Clerks, tally.
Clerks, tariff.
Clerks, ticket.
Clerks, train masters'.
Clerks, transfer.
Clerks, voucher.
Clerks, way bill.
Clerks, way bill examining.
Clerks, weighing.
Clerks, yard.
Climbers.
Coal dumpers.
Coal handlers.
Coal heavers.
Coal hoisters.
Coal passers.
Coal shovelers.
Coalers.
Coalers and wipers.
Collectors.
Collectors, ticket.
Collectors, tollgate.
Commissioners, land.
Commissioners, pool.
Commissioners, tax.
Comptrollers.
Conductors.
Conductors, coal train.
Conductors, dining car.
Conductors, drawing room car.
Conductors, freight.
Conductors, freight and passenger.
Conductors, milk.
Conductors, passenger.
Conductors, sleeping.
Conductors, shifting.
Conductors, suburban.
Conductors, wood train.
Conductors, yard.
Cooks.
Cooks, boarding car.
Cooks, dining car.
Coopers.
Coppersmiths.
Coppersmiths' apprentices.
Coppersmiths' helpers.
Copyists.
Coremakers.
Corkers.

Couplers.
Cranemen.
Croppers.
Crossing tenders.
Crossing tenders, boss.
Cupolamen.
Custodians, depot.
Cutlers.
Deck hand, excavators.
Deliverymen.
Deliverymen, freight.
Depot hands.
Depotmasters.
Derrickmen.
Detectives.
Dining car employes.
Dipper tenders.
Directors.
Directors, acting.
Directors, executive.
Dispatchers.
Dispatchers, assistant.
Dispatchers, bridge.
Dispatchers, car.
Dispatchers, chief.
Dispatchers, engine.
Dispatchers, yard.
Distributers of passenger equipment.
Division chief telegraph operators.
Dockmasters.
Doorlifters.
Doormen.
Doortenders.
Dopers.
Drag-outs.
Draughtsmen.
Draughtsmen's apprentices.
Draw tenders.
Draymen.
Drillers.
Drillers' apprentices.
Drillers, coal.
Drillers, head.
Drillers' helpers.
Drillers, work train.
Drillers, yard.
Drillpressmen.
Drivers.
Dummy boys.
Dumpmen, coal.
Electric light engineers.
Electric light tenders.
Electric light trimmers.
Electricians.
Elevatormen.
Employes of ferries.
Employes of junction eating-houses.
Enginelighters.
Engine preparers.
Engine preparers' assistants.
Engine turners.
Engine turners' helpers.
Engineers.
Engineers, assistant.
Engineers, bridge.
Engineers, chief.
Engineers, coal train.
Engineers, crane.
Engineers, dock.
Engineers, dummy.
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This volume is carefully Indexed, but for the convenience of the reader and to render the book easier to handle, the Index is included (with a full Index of the whole work) in volume Twelve under the title "GENERAL INDEX." This "GENERAL INDEX" is also, in a measure, an Encyclopedia of Railway Knowledge.

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