

HOUTAHAN'S
RAILROAD
HAND BOOK



*Yours truly
Patrick H. Houlahan*

HOULAHAN'S
Railroad Hand Book

RAILROADING

BY
Patrick H. Houlahan

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HOULAHAN'S

Railroad Hand Book

AN
INSTRUCTIVE TREATISE
ON

RAILROADING

BY

Patrick H. Houlahan

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A BOOK THAT SHOULD BE READ BY
ALL YOUNG MEN WHO ANTICIPATE ENTERING
THE RAILROAD SERVICE;
AND, ALSO, BY ALL RAILROAD MEN, ESPECIALLY
ENGINEERS, CONDUCTORS, FIREMEN,
BRAKEMEN, DISPATCHERS,
AGENTS, OPERATORS AND CLERKS.

INTRODUCTORY.

I have no reason to offer for writing this book other than that it has occurred to me, during my railroad experience, that it would be to the interest of railroad men in general, if some railroad man who has himself had the odds against him, would outline a policy to be followed, in order to attain success.

I commenced railroading in 1867, at the age of twelve, as "water-boy" during the construction of the twelve and one-half miles of track, between Streator and Wenona, Illinois, and have been in continuous service, in various positions, up to that of Superintendent. My twenty-four years experience, therefore, in connection with the following copies of testimonials and letters, which I have received during my railroad career, will go to show that I am fitted, at least to a certain extent, for the undertaking:

FRIENDSHIP DIVISION.

BEARDSTOWN, ILL., April 25, 1886.

The Honorable Body of Members of Friendship Division No. 81 Order of Railway Conductors, Greeting:

In view of the fact that our estimable Train Master, P. H. Houlahan (of the St. Louis Division of the Chicago, Burlington and Quincy Railroad), is about to take his departure from our midst, and

WHEREAS, We have become greatly attached to him as an Officer in that position, his fair and impartial dealings with us as Conductors, and,

WHEREAS, We have every reason to believe that our strict compliance with his orders and instructions have won his respect and admiration of us as an organization, and,

WHEREAS, While we feel loath to part with him as Train Master, we wish him every success in his new position; therefore, be it

Resolved, That we, the members of Friendship Division No. 81, tender to Mr. Houlahan a handsome watch to show him our appreciation of his efforts to further the interests of Conductors in his employ, and as a mark of respect and esteem in which he is held by the members of the Division.

By order of Friendship Division No. 81,
T. M. COOK, C. C. Pro. Tem.
P. BECK, S. & T. Pro. Tem.

CHICAGO, BURLINGTON AND QUINCY RAILROAD COMPANY.

HENRY B. STONE, GENERAL MANAGER.

CHICAGO, May 12, 1886.

To Whom it May Concern:

This will introduce Mr. P. H. Houlahan, who has been in the employ of this Company for a number of years; the last few years as Train Master of our St. Louis Division.

I take pleasure in introducing Mr. Houlahan as a man of character and ability, and am confident he would do well on any work that he felt willing to undertake.

(Signed) HENRY B. STONE.

CHICAGO, BURLINGTON AND QUINCY RAILROAD COMPANY.

J. D. BESLER, GENERAL SUPERINTENDENT.

GALESBURG, ILL., May 12, 1886.

To Whom it Concerns:

The bearer, Mr. P. H. Houlahan, has been in the employ of the C., B. & Q. R. R. Co. for the past seventeen years, beginning as water boy on Construction Train, and holding positions successively as Track Hand, Check Clerk and Baggage Master, seven years as Brakeman and Conductor, and finally promoted to Train Master of the St. Louis Division of this road, which

position he has held about four years, giving good satisfaction, and now resigns to accept position elsewhere.

Mr. Houlahan has been advanced from one position to another because of his ability and strict attention to the Company's interests and business. I can say for him that he is a No. 1 railroad man, and thoroughly understands train and station work.

(Signed) J. D. BESLER,
Gen'l Supt. C., B. & Q. R. R.

CHICAGO, BURLINGTON AND QUINCY RAILROAD COMPANY.

ASSISTANT SUPERINTENDENT'S OFFICE.

BEARDSTOWN, ILL., May 15, 1886.

To Whom Presented:

The bearer, Mr. P. H. Houlahan, has been employed on this Division during the last six years as Freight Conductor, Assistant Train Master and Train Master. In each of the above positions he has proven himself a first-class man in every respect, and I am glad to recommend him as an officer of untiring energy, faithful in the discharge of every duty, and one of the most capable and successful men in handling a force of train men I ever knew.

Mr. Houlahan has resigned his position with this Company to accept a better position with

another road, and leaves our service in good standing. Yours truly,

(Signed) W. C. BROWN,
Asst. Supt. St. Louis Div. C., B. & Q. R. R.

CHICAGO, BURLINGTON AND QUINCY RAILROAD COMPANY.

GALESBURG, ILL., May 17, 1886.

P. H. Houlahan, Esq., Pine Bluff, Ark.:

DEAR SIR.—I am in receipt of yours of May 7th, advising me that you had tendered your resignation as Train Master of the St. Louis Division, to take effect Saturday, May 15th, to accept a position on the St. Louis, Arkansas and Texas Railway. I regret very much that you have concluded to sever your connection with this Company, and shall watch your progress in your new field with much interest, and have no doubt at all but that you will exercise the same promptness and efficiency that you have shown in your connection with this Company, and that you will satisfactorily fulfill the duties intrusted to you.

I should be pleased to hear from you from time to time as to how you are getting along.

Yours Truly.

(Signed) C. F. RESSEGUIE,
Sup't. Ill. Lines.

CHICAGO, BURLINGTON AND QUINCY
RAILROAD COMPANY.

T. J. POTTER, FIRST VICE PRESIDENT.

CHICAGO, May 20, 1886.

To Whom it May Concern:

The bearer of this letter, Mr. P. H. Houlahan, has been in the service of this Company for a number of years. He has filled all positions in the train service, and for the past two years has been Train Master of the St. Louis Division. He now leaves our service to accept a position with another road.

While in our employ we have always found him industrious, capable and loyal to the interests of the Company, and any Company employing him will find him a trustworthy man.

Yours Truly,

(Signed) T. J. POTTER.

THE ST. LOUIS, ARKANSAS AND TEXAS
RAILWAY.

OPERATING DEPARTMENT.

W. R. CRUMPTON, Gen'l Sup't.

TEXARKANA, TEX., July 29, 1886.

*P. H. Houlahan, Esq., Master of Transportation,
Pine Bluff, Ark.:*

DEAR SIR.—In view of the reforms you have been successfully inaugurating in your department within the few short weeks you have been

in charge, and the active interest you have taken in your duties, I desire to recognize the same by advancing your salary from \$175 to \$200, the same to date back from the time of your first employment; this also includes your traveling expenses as usual. I would say in this connection, that your administration so far has proven very satisfactory to President Fordyce.

Yours truly,

(Signed) W. R. CRUMPTON,
Gen'l Sup't.THE ST. LOUIS, ARKANSAS AND TEXAS
RAILWAY.

OPERATING DEPARTMENT.

W. R. CRUMPTON, Gen'l Sup't.

TEXARKANA, TEX., Oct. 8, 1886.

*P. H. Houlahan, Esq., M. of T., A. & M. Division,
Pine Bluff, Ark.,*

DEAR SIR.—In accepting your resignation, tendered me the 17th of last month, I regret the necessities of your health are such as to require that you should sever your connection with this property.

I desire to bear testimony to your ability as a Chief of the Transportation Department, to your integrity, and the energy with which you have administered to my entire satisfaction, the affairs of your department. Having known you

both upon this line and the Chicago, Burlington & Quincy Railroad for several years, I can cheerfully recommend you to any Railroad Official who requires a first-class man in the Transportation Department.

Yours truly,

(Signed) W. R. CRUMPTON,
Gen'l Supt.

PINE BLUFF, ARK., Nov. 1, 1886.

*P. H. Houlahan, Esq., Master of Transportation,
St. L., Ark. & Tex. Ry., Pine Bluff, Ark.*

DEAR SIR.—It is with feelings of deep regret that the employes of the Transportation and Motive Power Departments have heard of your proposed change of location.

We feel that in the change we lose a good friend, a genial companion and a superior officer under whom it is a pleasure to serve. One who can sympathize in, and has had practical experience with, the numerous vicissitudes incumbent and pertaining to the life of a railroad man, and one who can appreciate the abilities of a good man when circumstances may justify.

You leave Pine Bluff and the Missouri and Arkansas Division of the St. Louis, Arkansas & Texas Railway with the genuine and heartfelt good wishes of the majority of the employes, and, while your departure is a matter of regret,

we still hope that your future may be bright and prosperous socially and financially, and that the new field of labor to which you go may be the means of bringing you into greater prominence as a railroad man, and give greater room for a display of your abilities, and lead to a substantial appreciation of the same.

In tendering you this token of our feelings and appreciation, rest assured it is not done in the hope of any future benefit that may accrue to us individually, but simply from a sense of justice and right and as a recognition of the business qualifications displayed by yourself while in charge of the Missouri and Arkansas Division of the St. Louis, Arkansas & Texas Railway.

It is the sincere wish of the undersigned that the blessings of Heaven may rest upon you; "may you live long and prosper," and when called upon to make your last report to the Great General Manager we trust you will receive his endorsement of "well done, thou good and faithful servant; enter thou into the joy of thy Lord."

Very sincerely yours,

J. H. FOGGITT,
R. B. JONES,
C. C. LOVELADY,
EDW. HANF,
H. KING WHITE,

J. F. DICKEY,
M. J. HURLEY,
P. B. MCTARAN,
M. H. O'BRIEN,
C. M. NEEL, SR.

THE ST. LOUIS, ARKANSAS & TEXAS
RAILWAY.

EXECUTIVE DEPARTMENT.

St. Louis, Mo. Dec. 27, 1888.

S. W. FORDYCE, President,

P. H. Houlahan, Esq., Brookfield, Mo.

DEAR SIR.—It gives me pleasure to state that while in the service of this Company as Master of Transportation your duties were discharged faithfully and well. At the time you took charge there was very considerable confusion incident to the large amount of work to be done in changing the gauge, and many reforms instituted by you I am satisfied are a great benefit to this Company.

Very sincerely yours,

(Signed) S. W. FORDYCE,
President.THE ST. LOUIS, ARKANSAS & TEXAS
RAILWAY.

EXECUTIVE DEPARTMENT.

S. W. FORDYCE and A. H. SWANSON, Receivers,

St. Louis, Mo., December 2, 1889.

*Mr. H. K. Wade, Gen. Mgr. California Lines,
A., T. & S. F. System, Los Angeles, Cal.*

MY DEAR SIR.—I desire by this note to introduce to your favorable consideration Mr. P. H. Houlahan, who was for some time Division

Superintendent of the Arkansas and Missouri lines of this Company.

Mr. Houlahan discharged his duties faithfully and well and only left the services of this Company on account of ill health occasioned by the climate. Mr. Houlahan is active, energetic, faithful and competent; and I am sure would discharge the duties of Superintendent of some of your lines to your entire satisfaction. He is a young man of ambition and rare good sense.

Very truly yours, etc.,

(Signed) S. W. FORDYCE,
Co-Receiver.BELLAIRE, ZANESVILLE AND CINCIN-
NATI RAILWAY COMPANY.

W. R. CRUMPTON, GENERAL MANAGER.

ZANESVILLE, O., May 20, 1890.

P. H. Houlahan, Esq., Brookfield, Mo.

DEAR SIR.—I am more than pleased to receive the circular appointing you as Assistant Superintendent.

I know that this promotion is well merited, and, in my opinion, should have come long ago. I hope your success in your new position and that you may continue to climb higher, is the fervent wish of

Yours very truly,

(Signed) W. R. CRUMPTON.

CHICAGO, BURLINGTON AND QUINCY
RAILROAD.

OFFICE OF GENERAL MANAGER.

CHICAGO, August, 26th, 1890.

Mr. P. H. Houlahan, Asst. Supt. Brookfield, Mo.

DEAR SIR.—I return the testimonials you sent me. I do not need any testimonials from anyone else to influence me with regard to your character and ability. The conduct of your business and your uniform high standard of what is due between man and man, or between officials and employes, and your close and untiring industry and intelligent carrying out of your duties, is a better recommendation to me than the best eulogy that can be put upon paper. I consider that you not only understand the business of transportation very thoroughly, but that you bring to bear in your handling of that branch of the service a high order of intelligence. This, in my judgment, in the aggregate, produces the best results.

Yours truly,

(Signed) W. F. MERRILL.

STREATOR, ILL., March 30, 1891.

P. H. Houlahan, Esq.

DEAR SIR.—Returning from a brief sojourn in Havana, Cuba, I find yours of the 20th, inst., and reply.

The track of that portion of the original Ottawa, Oswego and Fox River Valley Railroad lying between Wenona and Streator was laid in the fall of 1867. The President of said road was Hon. Washington Bushnell, late of Ottawa, deceased. The General Manager of this piece was Oliver Young, Esq., of Ohio, also deceased. It was sold to the C. & A. Co. in 1869, and now forms a part of their line from Dwight to Washington, via Peoria.

The Fox River Line was completed from Streator to Geneva, twelve miles north from Aurora, on the 1st of January, 1870. Bushnell remained President until the lease to the C., B. & Q., which was made on the completion as above. It was built by myself, Col. Cushman and C. H. Force.

I congratulate you on your success. From water boy to Assistant Superintendent, shows what constant effort can do.

Yours truly,

(Signed) RALPH PLUMB.

HANNIBAL & ST. JOSEPH RAILROAD
COMPANY.

OFFICE OF SUPERINTENDENT.

BROOKFIELD, Mo. April 20, 1891.

S. H. CRANCE, Superintendent.

*Mr. P. H. Houlahan, Asst. Supt. H. & St. J.
R. R.*

DEAR SIR AND FRIEND.—Having been intimately acquainted with you for the past twelve years, knowing you as a conductor on the C., B. & Q. road, as assistant and Train Master of the St. Louis division of the C., B. & Q., Master of Transportation of the St. Louis, Arkansas & Texas, Train Master and Assistant Superintendent of this Company, most of this time working shoulder to shoulder with me, I take great pleasure in saying that in you I have always found a faithful employe, keenly alive to every emergency, carefully guarding and working for the best interest of the Company you represent, in every position you have occupied; and hoping that our railroad work may continue arm in arm for the days or years that I remain in the service, I am, sincerely,

Your friend,

(Signed) S. E. CRANCE.

AMERICAN EXPRESS COMPANY.

SUPERINTENDENT'S OFFICE, MISSOURI DIVISION.

PEYTON R. KEIM, Superintendent.

KANSAS CITY, Mo., May 15, 1891.

*Mr. P. H. Houlahan, Superintendent West Div.
ision H. & St. J. R. R., Brookfield, Mo.*

DEAR SIR.—The circular announcing your appointment as Superintendent of the West Division of the Hannibal and St. Joseph Railroad, with office at Brookfield, Mo., has just reached me, and I desire to extend to you my sincere and heartfelt congratulations in your appointment, especially as your advancement cannot be attributed to favoritism, but instead, to true merit that has been recognized by the Managers of the Company, and in consequence you are entitled to feel a just pride in your having been selected to occupy such an important position in the service of the "Burlington."

So far as my influence and opportunities extend, they will be used in your behalf, as my business relations with you have been characterized by a spirit of fairness, and our social relations have always been of the most pleasant character, and I sincerely hope the future will not mar these conditions.

Wishing you every success, I am,

(Signed) PEYTON R. KEIM.

Kansas City, St. Joseph & Council Bluffs R. R.
Hannibal & St. Joseph Railroad.
St. Louis, Keokuk & Northwestern R. R.
Chicago, Burlington & Kansas City R. R.

W. C. BROWN, GENERAL MANAGER,

ST. JOSEPH, MO., June 1, 1891.

To Whom Concerned:

I have known the bearer, Mr. P. H. Houlahan, something more than eleven years. During that time and for the most part, under my supervision, he has been promoted from the position of Freight Brakeman to that of Division Superintendent of the West Division of the Hannibal and St. Joseph Railroad.

Mr. Houlahan was one of the best Freight Conductors I ever saw, was one of the best Train Masters I have ever had, and is making a first class Division Superintendent. He is a man of good character, exemplary habits, excellent judgment, and possesses the happy faculty of being a strict disciplinarian, but at the same time securing and holding the warmest friendship of his men. Yours truly,

(Signed) W. C. BROWN,
Gen'l Manager.

In this work, I have followed out the usual lines of promotion from Brakeman to Superintendent, from Wiper in Roundhouse, or Fireman, to Superintendent of Motive Power, from Telegraph Messenger boy to Chief Train Dispatcher, from Office boy, or Freight Clerk, to General Agent; also treating on General Manager and President. No rule can be given that will suit all cases and conditions, but no matter in what position any one enters the railroad service, the path which he is treading will join the illustrations at some point, and it should be considered as addressed to him from that point onward.

PATRICK H. HOULAHAN.

PART I.

BRAKEMAN—SUPERINTENDENT.

CHAPTER I.

BRAKEMAN.

As a rule, young men who decide to engage in the railroad service as brakemen do so because there is a certain fascination connected with the business, due to the fact that they are privileged to ride through various sections of the country, with advantages similar to those for which others have to pay, affording them an opportunity to visit different villages and cities, which serve to satisfy the natural longing for travel and desire for change of scene felt by young men, especially between the ages of seventeen and twenty-five. There are other motives that induce young men to seek this field of labor, one of which is, that where a young man is deficient in education, he is not able to fill positions in other branches of the industrial world that will compensate him for service ren-

dered as well as do railroad companies for service as brakeman, as the scale of wages in train service is fixed at a higher rate than in other vocations for an equal amount of intelligence and ability, on account of the risk of life and limb in the performance of duty; it follows, therefore, that many such seek employment in the train service of railroad companies.

It is the exception instead of the rule for a man who changes from one road to another to be successful; for this reason a young man who decides to enter the railroad world as brakeman, before making application for a position, should carefully consider the business and financial standing of the road toward which he is directing his attention as compared with other roads; his future chances in connection with the position and the field for advancement; whether or not the climate in the section of country through which he would run will agree with his health; also, if the community in which the majority of the train-men

have their "lay over" is all that he would desire as a location to be made his home.

To make a good brakeman, a young man should be possessed of the average amount of good common sense, should have a good memory and a quick ear, and should incline toward being shrewd and business like. He should also be active, possessed of a sound body and a steady nerve. He should be firm in his decisions, following closely his instructions and looking to the best interests of the company, and should always be civil and polite.

Upon being employed, and after passing the usual examination, receiving advice and instructions from his employer, he should, if not a married man or one who has a home with his parents, proceed to select a boarding house, making an effort to find one that is considered respectable and kept neat and clean, that does not solicit rough and vulgar patronage, or that is run in connection with a

saloon, and that will be in keeping with the salary he expects to draw, taking into consideration the fact that he may become sick or injured, etc., and allowing for a saving of some of his earnings.

For various reasons he should make it a rule to save some of each month's salary, when ill health or accident does not prevent. It has its influence in keeping him from frequenting places of ill-fame, saloons, etc., and, if he is saving a part of his salary, it is reasonable for his Superior Officers to consider him a more valuable man than if it were otherwise; not so much on account of the money saved in itself as on account of the various influences attending it in the different directions.

If he conducts himself in a respectable manner, keeps himself neat and clean when surrounding circumstances permit, and assists his parents to a reasonable extent (when they need such assistance), he will command respect wherever he goes; and, if possessed of ordinary good

sense and ability, he is bound to be successful.

CHAPTER II.

PASSENGER BRAKEMAN.

The young man entering the service as a Passenger Brakeman should be at his post of duty enough in advance of the advertised leaving time to couple the engine to his train, test the brakes and put the train in proper running order; after which, he should station himself at the side of the train, and remain there until it is due to leave, for the purpose of directing inquirers and assisting infirm persons, ladies and children onto his train.

When announcing the name of a station he should not transpose it into a verse of a song, but should announce the name clearly and distinctly each time, and if, in his judgment, from the appearance or actions of any of the passengers they do not seem to understand, he should make a special effort to properly direct

them, in order that annoyance and trouble to the passenger, as well as the Company and himself, may be avoided.

He should always be courteous and obliging and perform all his duties in a genteel manner, bearing in mind that he must refrain from unnecessary talking and visiting with passengers or others.

He should, so far as lies in his power, see that the proper temperature is maintained in the cars, and that they are properly ventilated; also, when running at night, he should see that the lamps are burning properly, and in a general way look after the comfort of the passengers.

When out on the line, at stations where there is no Car Inspector, and the train is stopped for the purpose of supplying the engine with water or fuel (if there is a flagman on the train), he should look over the running gear, to see that all is right.

If the train is not provided with a flagman, he should, so far as practicable,

ride in the rear car, and should have all the supplies necessary for flagging at hand; so that, if, in case of accident, or on any other account the train makes an unusual stop, he can get back the prescribed distance without unnecessary delay, to insure safety to his own against following train.

Too much importance cannot be attached to the matter of properly protecting a passenger train; as upon it depends the lives of those on board, and to properly protect a train the use of torpedoes should never be neglected, as the engine crew of following train may be engaged at the critical moment arranging or adjusting some of the many parts of the machinery, to keep it in proper working order, so that, in the absence of the explosion of torpedoes, they will pass the flagman unperceived.

There are other good reasons why the use of the torpedoes should not be neglected; one of which is, when a flagman, after having gone back, is "called in" by

the whistle of his engine, or by the conductor, brakeman, baggageman or fireman, as circumstances may require, torpedoes, are placed on the rail to protect the train in advance, from the time the flagman leaves the position he occupied when "called in," until he has returned and boarded his train and it has regained its usual speed.

CHAPTER III.

FREIGHT BRAKEMAN.

The young man who starts in the train-service as freight brakeman, should at once begin to study a copy of the rules and instructions furnished by his employer, with the object in view of familiarizing himself with them to such an extent that he will make as good, if not a better showing than usually made by young men on their first trip; as upon this and the following two or three trips depends his chances, while serving in that capacity, especially if there are several extra brakemen.

After being called for his first trip, he should step up to the conductor of the train to which he has been assigned and explain to him in a polite, but business-like manner, that he is not possessed of any railroad experience, in fact is now preparing to make his first trip; but that he is ready and willing to do as instructed, wishing to work to the best interests of all concerned, and is anxious to become a successful railroad man.

The train is properly looked over and is about to start upon its journey. The conductor assigns the young man to the position familiarly known to train men as the "head man," finishes his preparations and the trip is begun.

The young man takes his position on the first or second car behind, or on, the engine, in order that he may be close to the engineer and fireman to receive any instructions they may see fit to give him, in relation to the proper performance of his duties, such as opening and closing switches, getting on top of train approach-

ing stations, setting brakes descending heavy grades, etc., he having been instructed by the conductor to follow the advice of the engineer and fireman, and they having been informed that he is a new man.

As he stands upon the train for the first time his mind is diverted from the train to the varied pieces of landscape swiftly gliding by, and he feels a certain exhilaration which is almost indescribable. As the train darts through a bridge, or makes an unusual jerk, he involuntarily thinks about the danger incurred; what a terrible thing it would be if he were crippled for life or killed; what his parents, relatives or "sweet-heart" would think and feel if such were the case, and many other like thoughts flash through his mind, but, with difficulty perhaps, he dismisses them and thinks about the business in which he is engaged, whether or not he will be successful and some day be promoted to the position of conductor.

During the first few months of his

railroad experience, especially, he should use the utmost care in everything he does, in fact doing nothing that he does not know to be right. When throwing switches he should see that the rails "line" properly or points close up tightly. He should never stand beside a "switch" when a train is approaching or passing, in order to guard against the unaccountable impulse of "throwing" a switch that is properly set. When setting brakes he should be careful to avoid the sliding, and consequent destroying of wheels. When "dropping cars in" at stations he should always consider it down grade until he is assured that it is not; in so doing he will leave no chance for them to get beyond his control; and when leaving them, if equipped with air-brakes, and the hand brakes are in proper working order, the latter should be used to secure them. The air brakes should not be depended upon, as in time they may release, leaving an opening for an accident.

When giving signals with a lantern

he should use judgment. When he wishes an engineer to move slowly or a short distance, signal should be given accordingly; emphasizing it when emphasis is needed. In fact, cool and deliberate judgment should be exercised in every move; it is essential to the proper performance of duty in any department of a railroad.

The weeks and months glide by and our young man is steadily storing up railroad knowledge; he should now commence to look into the future with the idea of improving his condition generally. If he has no home other than a hotel or boarding house, he should make the acquaintance of one or more young ladies, or families in which there are young ladies, and should visit them at intervals; if for no other purpose, to improve his gentlemanly deportment and politeness, which few men can be possessed of and hope to retain without placing themselves under the refining influence of the gentler sex.

If he is not an exception, his education is limited and he should proceed to improve it, and to do this he should provide himself with an arithmetic (such as, for instance, Ray's Third part), a history, a geography, a grammar and a dictionary. From one to two hours each day, when not on the road the previous night, should be consumed in their study.

In addition to the benefits directly derived from continuing such a course of study, it serves not only as a check in keeping the student away from saloons, gambling houses, billiard halls, houses of disrepute, etc., but it also gives him loftier ideas and ambitions generally. He should also subscribe for, and peruse, a daily newspaper, and some good railway journal.

He should never absent himself from duty at the different terminals without permission, when there is a possible chance for his "crew" to be used; and such permission should not be requested unless there are good reasons for so doing.

He should annoy his employer as little as possible, and endeavor to win his confidence and esteem.

Instead of a young man, after entering the railroad service, "falling in" with the "rougher" class of men with the object of becoming "one of the boys," thinking that is the only way of securing friends among railroad men, drifting along until his will power is so weakened by dissipation that he has not the moral courage to leave his so-called "friends," and in preference, sacrificing his position, losing all ambition in life and becoming what is termed a "traveling railroad man," he should keep none but good company, and never miss an opportunity to gather information concerning the running of a freight train, so that when called upon to make his first trip as a freight conductor he will be able to make a good showing.

CHAPTER IV.

FREIGHT CONDUCTOR.

A young man while acting as an extra freight conductor, when it comes to the matter of running on short time against, or ahead of, a superior train, or about as close time as old and experienced conductors would attempt to run on, should, as in everything else, make safety the first consideration, *and not go*, as he has not established a reputation as a conductor, and if everything does not work as anticipated and trouble ensues, his future on that road is injured for a year or more, if not for all time.

When running at night he should do no sleeping and permit his brakeman to do none. One good reason for this is, that the conductor who sleeps at times while on duty, or permits his brakeman to do so, gives them such a "hold" upon him that it is next to impossible for him to exercise authority over them. A conductor and his brakemen may be good

friends, even "chums," while off duty, but it should be understood that it is a matter of business while on duty together, and the brakemen should be forced to realize that the conductor is their superior, whose instructions, when they do not conflict with the rules of the company, are to be obeyed.

He should perform his whole duty as a conductor, and should never depend upon his engineer or brakemen to do a part of it. While running between stations, and not otherwise engaged, he should ride in the cupola of the caboose, so as to be able to assist promptly, should it become necessary to make an emergency stop, on account of a disabled engine, car in train breaking down, train parting, etc.

When expecting to stop at a station for the purpose of doing work he should go forward as the train approaches the station, instead of waiting to be drawn to the station platform in caboose. He should see that the switching is carefully done. If in his opinion his engine can

draw one or two more cars over a certain piece of track than her "rate," if the tide of business is in that direction, he should haul them. In short, he should run his train in the interest of the company, just as he would if he owned the road, and where he notices that an improvement can be made, even though it is not directly in his line of business, he should lay the matter before his superior officer. He should make his reports at the end of each trip, and answer all correspondence promptly.

He should be especially watchful not to become influenced by, or associated with, railroad men or others, who incline towards gambling, regardless of their position as compared with his own. He should at all times conduct himself in a gentlemanly manner and should leave nothing undone in regard to learning the duties of a passenger conductor; as he may be called upon at any time, on account of sickness or death, or urgent business, to run a passenger train to the

next terminal, or to remain on the run for a time. Upon his actions in connection with this trial, his doing a certain percentage of the extra passenger running, acting as conductor of special trains, etc., depends to quite an extent.

CHAPTER V.

PASSENGER CONDUCTOR.

After a few trips on passenger, or special train, if he displays the requisite ability and makes a favorable impression in a general way, he is advised by his superior officer to procure the "regulation uniform." He is then in a position to form a fairly correct opinion of his future chances to secure a regular passenger run, and becomes more careful than ever in the handling of his freight train until he is given the position of regular passenger conductor.

He should upon assuming his duties, as such, endeavor not to appear timid in the performance of same; in announcing

"all aboard," he should do so in a firm and distinct tone and when talking with, or advising his passengers as to routes, connections, etc., he should speak and act in a civil, but firm and business like manner. He should not do too much visiting with his passengers, with other employes or his acquaintances at stations, nor should he on arrival at the different hotels or boarding houses commence talking railroading, criticising his superior officers, explaining what a wonderful man he (himself) is, and how little others know. As a rule it will pay to take the part of a listener, at such places, especially until one becomes acquainted with the clerks and regular guests.

He is now launched into the business world where he has dealings with all classes of people, and his dress and deportment should be that of a business man; his suit, other than uniform, should be a neat plain one, and little jewelry should be worn by him, as the eyes of other employes, people along the line and

the traveling public are directed towards him, and, naturally he is rated by them as being possessed of more intelligence than the average railroad man.

The action of the passenger conductor of fifteen years ago is not what is desired at the present time by the traveling public, nor the officials of railroad companies, and men who were successful as such in those days (unless they have kept pace with the times) cannot be taken as examples at this age, as the people, the country and business methods are advancing with such rapidity that they would not come up to the "standard." Therefore to the passenger conductor of to-day the importance of securing (at one time or another) at least a fair education, is apparent. He should also be well informed upon the current topics of the day so that he can, with reasonable accuracy, answer the many varieties of questions asked him by the different classes of travelers.

While acting as a passenger conduc-

tor, he should direct his attention toward the several branches connected with the operating department, acquainting himself (at times when it does not interfere with his own duties) with the men on the line in a general way, the duties of the agents and operators, as well as all other employes in the operating department, how many loaded and empty cars the different size engines are capable of handling over the different parts of the line, whether there have been any changes in the number of loaded and empty cars that is considered a full train, owing to the changes in the capacity of cars or engines, since he served as a freight conductor, how the passenger and freight trains are switched and the yards handled at the different points along the line, which way the tide of business is from time to time, etc., so that if the train master is promoted, transferred, dismissed or resigns, he can, without being unreasonable, figure that he may be called upon to fill the vacancy.

CHAPTER VI.

SUPERINTENDENT.

A superintendent should be a model man among his employes, honorable and just in all his dealings with them, possessed of business thoughts and ideas on a broad scale and should have a deep insight into human nature. Although as a rule, he should be firm in his decisions, his temper should be even, and when convinced that he has erred, he should in a broad liberal way admit it, regardless of whether the party who furnishes the evidence occupies an inferior or superior position.

He should be personally acquainted with the heads of all departments and be able to call by name all the employes (such as those in the train, locomotive, track and bridge departments, as well as the dispatchers, agents and operators, and the heads and their lieutenants, of the different offices of the freight and passenger departments) who have been

in the service under him six months, or longer, and should have a fair general idea of their ability in their respective positions.

He should give employes to understand that all rules in effect, and those which are issued from time to time, no matter how trivial they may seem, are to be obeyed and will be enforced to their fullest extent. If there are any rules in effect which cannot or should not be enforced, they should not exist and should be annulled, as nothing will demoralize the operation of a railroad as will the understanding among its employes that the officers do not expect certain rules or orders enforced.

In case of accident he should not act too hastily, and when employes are responsible for such accidents, their past record should be taken into account. He should never censure or pass judgment upon his subordinates on information gathered outside of the service, or from employes whose object in giving it is anticipation

of reward in the way of promotion, without giving the accused a hearing, and when giving them such hearing, consideration should be given their intellect and powers of expression. If they have not such a command of language that they can make themselves clear, or if bashful and timid, allowance should be made accordingly. On the other hand if accused are especially gifted with a command of language it should also be considered, in order that justice should be done both company and employes.

Often statements of employes are handled in a mechanical manner by superintendents, or their representatives, and knowing this employes make statements which would not be made if it were known that such statements would have to stand a test by having them placed in the hands of all others interested. The sooner officials adopt the principle, and have it clearly understood, that each statement, written or verbal, will be tested in such a manner that the facts, nothing

more or less, will be brought out, that much sooner will justice be meted out to all concerned and the service improved accordingly. To bring about such results the official should be as lenient as he can consistently, when it is demonstrated that an employe, after getting into some difficulty, has made a truthful statement, and as can readily be perceived, the better class of employes will be incited to truthfulness on account of the fact that the official displays his appreciation of principle, and the lower class of employes will be incited to truthfulness because they can clearly see that the truth will ultimately be brought to the surface and they will be severely dealt with if they do not tell the truth.

To enforce good discipline among men and be recognized as their superior officer it is not necessary for him to be "distant" with them, if he is possessed of the ability to draw the line at the proper place. All that is necessary is, in a quiet, firm manner little by little, to educate the em-

ployes to the understanding that nothing but business is acceptable in connection with business. When an exceptional employe, after a social talk with him, inclines toward being "too fresh," he should be given to understand by a mild hint that he is inclining that way; if he does not "take the hint," give him another which is a trifle more forcible, and in due time he will "fall into line."

As a rule, employes in order to keep their respective departments up to what they consider the proper standard, are naturally a little more extravagant in the way of making improvements, adding to their supplies, etc., than is usually necessary, and a superintendent should be possessed of such judgment and business tact that he can "draw the line" at the proper time and place, and in such a way that he will not wound the feelings of his lieutenants, but make them feel that he has confidence in their judgment and ability, that he may retain their loyal support.

A superintendent should go over the line at least once a week, in the absence of some unusual occurrence, and should keep himself well posted on what is transpiring throughout the country in order that he may form an accurate idea as to what products will move next, and the direction, so that he may properly instruct his subordinates and in a general way make the necessary arrangements to protect the business and secure a reasonable proportion of it, as against competing lines.

He should be well informed on the cost of constructing track, placing the different kinds of ballast under it, and what it costs to renew or maintain it, the shortest degree curves and steepest grades practicable, considering the kind and size of engines in use, etc. He should have a good practical idea of the lay of the track, condition of all culverts and bridges on the line, and any portions of the track which are exceptionally liable to damage by severe storm, etc.

He should be able to talk intelligently with his bridge superintendent or foreman about the cost of repairing, or building new, bridges of the different sizes and styles, and should also be capable of forming a good estimate of the cost of repairing, replacing or building new, station houses, freight rooms, machine shops, turn-tables, terminal facilities, reservoirs, water tanks, etc.

He should be conversant with the earnings of the passenger and freight departments as a whole; the earnings of each passenger train per mile, the cost of renewing and maintaining all passenger and freight equipment, the condition and drawing capacity of all locomotives over the different portions of the line, as well as their cost and what it costs to maintain and operate them.

No superintendent who has his followers and places them irrespective of the interests of the company he is serving, or the ability of the men in the employ of the company before he took charge,

can hope to be successful; as it is a fact that many a young official who has had a bright future before him, has lost all by losing his influence and control over the men on account of using undue partiality of this kind. Ability, intelligence and gentlemanly deportment are working their way into the railroad world to such an extent that they are, and must be, recognized without partiality. Of course, if an officer personally knows one as a good railroad man and considers him better able to fill a certain position than an actual employe, weighing the broader experience of the one as against the more limited experience of the other (making due allowance for his being already in the employ), the place may be given to the former, but under no other circumstances.

All connected with the operating department, especially superintendents and others directly in charge of trains and their movements, should realize that their methods and manner of handling the

business are as crude, compared with the methods of those who will be occupying similar positions twenty-five years hence as the methods of their predecessors twenty-five years ago were, compared with those of to-day. This is a prediction that is a "foregone" conclusion, unless, in the meantime, some one studying on the problem of aerial navigation makes a success of it. All that is necessary to bring out this improvement in the operating department is to concentrate the brain and action of railroad employes in connection with the business so that they will think and act with the promptness and precision of well drilled military companies. The majority of railroad employes at the present day are ripe and ready for action, all they are waiting for is a leader or captain who is equal to the emergency, and it should be the ambition and purpose of every superintendent to become one of the leaders or captains in this progressive movement.

Thousands and thousands of dollars

are lost annually to a certain percentage of the railroads of this country, due to their superintendents and other officials not being men of sufficient knowledge and intellect to properly fill their positions. It is fortunate for them that all presidents and general managers are not practical railroad men, and in the same ratio it is unfortunate for the stock-holders.

PART II.

WIPER—MASTER MECHANIC.

CHAPTER I.

WIPER.

The young man entering the locomotive or mechanical department will find as large a field for advancement as in any other branch of the service. Previous to making application for a position he should view the situation carefully, as outlined on pages 26-27, which is intended to provide in a general way for young men desirous of entering the service of a railroad in any capacity.

Everything appearing favorable, he can, by inquiry, ascertain to whom he should apply. Here it might be well to say, his success in securing a position, as well as his future, if he is employed, depends somewhat on the manner in which he approaches his prospective employer. Entering the employer's office he should, when recognized, make known

his business, stating in a brief, gentlemanly manner that he has had no experience in the service, but feels that if given an opportunity he can perform the duties assigned to him in a satisfactory way, and will strive earnestly to that end.

After securing a position he should report for duty at the appointed time, when, if not an exception to the rule, he will be assigned to duty in the Round House as engine-wiper, helper, or to some other inferior, though necessary, work.

This beginning may appear small to the average young man, but he should remember that some of our most successful engineers and inventors of improvements to the locomotive can trace their success to early training in the Round House.

The young employe should carefully follow the instructions of his foreman and familiarize himself with the duties of his position, and the rules governing employes of his class, always bearing in

mind that punctuality and close application to work assigned him, no matter how trivial or burdensome it may seem at the time, are the most essential factors in laying the foundation of a successful career.

As the weeks and months go by, the young wiper gradually becomes acquainted with the men in the round house and machine shops, and the engineers and firemen on the different engines coming in and going out, and acquires a knowledge of the salaries paid them, which he will find are far in advance of his own. This should arouse his ambition and he should leave nothing undone in the way of energetic work and attention to duty that will help him to merit promotion.

The Foreman, or Assistant Master Mechanic, who is always watching for the most deserving young wiper, soon notices the efforts made in this direction, and recognizes them by tendering him a position in the repair shops as machinist's

helper, or as fireman of switch engine, when a vacancy occurs. For reasons that will soon become apparent, the young wiper should accept the position in the repair shop, even though the salary may be less than that of a fireman.

CHAPTER II.

MACHINIST.

The young man entering a machine shop at the usual age of apprentices has little knowledge of the demands that will be made upon his intellect in the performance of his duties on the different machines with which he must become familiar before he can be classed as a practical machinist; consequently he should endeavor to become sufficiently well versed in mathematics to meet these requirements as they are presented.

Upon entering the shop the young apprentice is generally assigned to duty on the "bolt-cutter," where, under the instructions of his foreman, he is taught

how to use it. By proper application he soon becomes master of this machine and begins to gather knowledge that will enable him to prove worthy of promotion to a lathe.

When he is promoted to one of the minor lathes, in all probability, his advancement places him beside a man, also on "lathe work," who receives a higher salary. The young machinist will, no doubt, wonder why such a difference is made, when his neighbor apparently works no harder than he. However, he soon learns that the work done by his neighbor is upon the finer and more intricate parts of locomotive machinery. Having reached this understanding he should put forth renewed efforts to fit himself for further promotion. In doing so, however, he should not allow his anxiety to excel in speed, to overrule his better judgment, and should never attempt any difficult piece of work, if not familiar with it, until he has consulted his foreman, as it is far better to acknowl-

edge inability to perform the work than to waste time and material in his efforts to produce a piece of machinery that will not serve the purpose for which it was intended.

As the time passes and he continues to display the necessary qualifications, he will be advanced from one lathe to another; each advancement bringing added responsibility and proportionately increased salary. Having become proficient in all classes of work produced by the different lathes, he should, when it does not interfere with his own work, endeavor to familiarize himself with the duties of the man in charge of the planer, so that he can reasonably expect promotion to that machine when a vacancy occurs.

Promoted to the planer he finds himself in charge of one of the most costly machines in the shop, upon which are produced the parts of machinery that form the basis of an evenly propelled locomotive, and consequently require the

utmost care and precision in their construction.

The length of time the young machinist will be required to serve in this position depends upon the manner in which his work is completed, and his ability to acquire the knowledge that will justify his promotion to the "floor" or erecting room.

In the erecting room, where the different parts of machinery are placed in position and the locomotive is fitted for the road, he finds ample use for the skill and experience gained while using the different machines in the shops; and, with the proper push and energy, can soon prove his competency, when he will be enrolled and ranked as a first-class machinist.

Although he has now secured a knowledge of locomotive machinery for which he can always secure a fair compensation, he has only been producing machinery and putting it together for the use of others, and has had to depend

to quite an extent upon information obtained from those using the locomotive upon which he can base ideas for the improvement of any particular part. For this reason, and to secure further recognition in the mechanical world, he should procure a practical knowledge of the locomotive in motion, accepting, if necessary, the position of fireman, which soon leads to that of engineer, where the field for mechanical observation is almost unlimited.

CHAPTER III.

LOCOMOTIVE FIREMAN.

Owing to the economy practiced in the maintenance of all locomotives in service, by a practical manager of this department, the line of promotion to the situation of fireman, while not necessarily slow, is given some deliberation. To fill vacancies in this position, employes occupying inferior positions in the Round House or Repair Shops, whose duties bring them in contact with the locomotive,

where they obtain a limited knowledge of the duties of a fireman, are usually selected.

As a rule, young men aspiring to the position of fireman are impelled by the idea that to become proficient in the use of the shovel and able to keep a "full head of steam" on an engine, are the only requisites for promotion to that of engineer. On account of this idea prevailing, the choice of being placed as a fireman is eagerly grasped by many young wipers whose talents, if properly trained by experience in the repair shop, would prove profitable to their possessors at an advanced stage in the profession.

Accepting the position of fireman, the young helper from the repair shop will in a short time be far in advance of the young man who accepted the place of fireman at the time he entered the shop, all other things being equal.

He should familiarize himself with the Time Table rules, especially those governing the movement of trains, and,

as soon as practicable, endeavor to become conversant with all regulations of the Operating Department. For the first few trips, on account of his not being familiar with the lay of the track, etc., he will be compelled to depend upon instructions from the engineer as to the manner in which the engine should be "fired."

His engine should be kept as neat and clean as possible and properly supplied at all times, the matter of procuring supplies being one of his first duties after arrival at terminals, regardless of whether or not he intends going out the next trip.

While his engine is in motion, he should always be on the alert, watching closely the movement of his own train, also the time of other trains and the signals they may be carrying; ask his engineer for, and read, all orders received pertaining to the movement of his train, and, by comparing time with his watch, (which every fireman should possess) know as well as his engineer that the

time allowed them against certain trains is sufficient for the run.

While switching he should be very cautious in transferring signals to his engineer from new or reckless train or switchmen, and always make due allowance for the lay of the track.

As the months go by and he becomes familiar with his duties, he should endeavor to improve his knowledge of locomotive machinery by watching closely the performance of his engine on the different grades of the road.

He should be economical in the use of fuel, and observe from which of the supply points along the line, the best results are derived for the amount consumed, always informing his engineer, Road Foreman or Master Mechanic of such observations.

He should peruse the bulletin boards from time to time for special instructions that may be issued by his department, and should never lose an opportunity to enlighten himself on the duties of an

engineer, so that he will not feel embarrassed when called upon to fill that position.

As the traffic of the road becomes heavier, requiring the service of additional engineers, the man who has served as machinist or machinist's helper previous to engaging as a fireman, is one of the first to be promoted, as his experience in a shop where locomotives are built and repaired, gives him an advantage and makes him better able to care for his engine, in case the machinery gets out of working order, than the man whose only railroad experience has been that of fireman.

CHAPTER IV.

LOCOMOTIVE ENGINEER.

So rapid has been the advancement of improvements in the building of locomotives and their appliances, each in turn simplifying the handling, that a man entirely strange to the locomotive and its workings can in a very short time be

taught to handle one almost as well as the man who has served as fireman or machinist, so far as moving and handling a train is concerned, but he cannot be classed as an engineer in all that the word implies; he is, so to speak, simply an additional piece of machinery to the locomotive as produced by the machinist and is compelled to depend upon the latter to detect defects in the machinery and to keep his engine in proper working order. A man of this class is not the most serviceable to a railroad, and, of course, cannot hope for any great promotion in the mechanical department.

The man who can assist in keeping mechanical engineering on an equal footing with all other achievements of man, is the one who, by earnest work, has secured a mechanical education in the repair or machine shops, and then secures a position as locomotive engineer.

Being placed as engineer, when called he should proceed to the round house and carefully examine the engine he is to

take, after first looking the "work-book" over to see what was "reported" on engine on arrival last trip, and then see if the work has been properly done. He should also know that the engine is fully equipped with the necessary tools and supplies. Having given this attention to the equipment of his engine and having seen that all parts are properly oiled, which should be done in advance of the time his train is ordered to leave, he should consult his time table, and in a business-like manner ask the conductor, when he comes to deliver the orders, if all trains due have arrived and departed; strictly adhering to this at all times, regardless of who the conductor may be, as it tends to freshen the mind of the conductor and is a step in the direction of safety.

If the engineer does not know personally, he should ascertain from his conductor whether or not the forward brakeman is an experienced man. If not, the engineer should use good judgment

when instructing him as to his duties, such as being on top of train when approaching and passing through stations and assisting in holding train descending steep grades, etc., for as a rule new brakemen are timid and afraid their work will not be acceptable, especially to the engineer, and in their efforts to please they oft-times place themselves, as well as others, in embarrassing positions, when, if they had felt free to ask the engineer's advice, the trouble might have been avoided.

As the engineer proceeds on his first trip, there is a certain feeling of pride combined with thoughts of the responsibility resting upon him which arise in his mind, and he wonders whether he will be as successful as other engineers of his acquaintance.

He should bear in mind that his superior officers have placed a great deal of confidence in his ability to perform the work and properly handle a large amount of the company's property, and that any

unmanly conduct or sign of inability on his part reflects to some extent upon the management of his department. He makes his first trip as an engineer and the master mechanic and round house foreman anxiously await his return, for, as a rule, they are as desirous that he should succeed as he himself. For this reason, if for no other, the young engineer should resolve that, so far as he is concerned, no ungentlemanly deportment or lack of attention to duty shall ever reflect discredit upon his superior officers.

Upon his return the master mechanic or his foreman makes a careful examination of the engine to see in what condition it was handled and kept during the trip. They are also anxious to hear what opinion the conductor formed of his work and whether or not the chief dispatcher or dispatchers think his running would compare favorably with that of other young engineers under similar circumstances. Having obtained this information and considering the condition in

which they found the engine, they are enabled to render a fairly correct verdict as to the ability of the young engineer, and upon this decision depends, to quite an extent, his future chances for extra running and advancement.

He should now begin to prompt himself upon the matter of acting coolly and collectedly in cases of emergency or accident to his engine or train, being calm and self-possessed at all times, as it should be remembered that the behavior of the rest of the crew depends, to a great extent, upon the actions of an engineer in cases where deliberate judgment is required to avert an accident involving the loss of life and property. He should give all connected with the train to understand that they must attend to their duties so far as they concern him, but in doing so he should exercise control of his temper, otherwise he will make it unpleasant for all concerned.

For the first few months after being promoted he should consider the fact that

he is a young engineer and not take the chances that he has seen older men take, in running on short time against, or ahead of, superior trains.

He has thus far been an extra engineer, but through the regular channel he is assigned to a regular engine, thus placing him on an equal footing with other freight engineers. He should now direct his attention toward economizing in the use of fuel, oil, etc. A favorable showing in this direction, such as is required to place one above the average, can only be secured by carefully studying the different grades of the road and watching closely the performance of his engine over the entire division upon which he is employed, and especially while running with the full number of cars at which his engine is rated. If, after careful consideration, he finds his engine can handle more cars than the regular registered rates, the Master Mechanic should be notified, that the additional number may be added. If, on the

other hand, he finds, after fair trial under favorable circumstances, that his engine is over-rated, such fact should also be communicated to the Master Mechanic or Road Foreman, in order that the engineer may not lose the confidence he may have gained by skillful handling of former engines.

The young engineer should make note of all matters which he considers of interest to his superior officers that may come under his observation, whether they be in connection with the Operating Department or not, making prompt report of all such observations, no matter of how little consequence they may seem. Such reports should be made in writing in a brief and concise manner. To be able to do this properly, he needs to have a knowledge of those branches of study which are the foundation of a common education. As a rule a man having arrived at the age necessary to have acquired information and experience sufficient to be a competent engineer, should

he lack in this important requisite, is a little backward about applying himself with sufficient energy to secure an education that he might have gained at an earlier period of life with less exertion and with better results, and while it is important in making a proper report of accident or damage to his engine, that the language be simple, clear and concise, the spelling correct and the writing plain, it is not essential to the maintenance of an engineer's record as to his running ability. It is, however, of great importance to one who desires to have his record as an engineer recommend him for promotion to a superior position, and such a man should apply himself accordingly.

As in all other vocations of life, there are times when, through accident or otherwise, misfortune or "ill-luck," as it is termed, may overtake an engineer and in the investigation that follows, the circumstances may be such that the impression made upon the minds of his super-

ior officers at the time is erroneous, and the engineer wrongfully censured, but such is far from being the rule, as in cases where the evidence is not conclusive, the employe is usually given the benefit of the doubt. However, should he be permitted under censure to remain with the company, he should continue to perform his duties fully as well as formerly, and calmly await wrong to right itself, which it will do in time, and will bring the reward that is justly due. If an engineer is fortunate enough to escape any misfortune of this kind, in due time, on account of the ability displayed by him, he may reasonably expect promotion to the position of regular passenger engineer.

From freight to passenger engineer is but a step, although it is a very important one, and is so considered by those who have the selection of passenger engineers in hand. An engineer to be placed in charge of a passenger train should be a man of exemplary habits,

possessed of a steady nerve, and quick to act when the emergency of the case requires prompt action. He should never lose sight of the responsibility resting upon him, as regards the comfort and security of his passengers and the safety of his train.

An engineer assigned to a regular passenger run has more or less leisure time (this combined with the regularity of the hours being the principal incentive for seeking the position), and he should improve his knowledge of machinery by putting in part of his spare time working on, and experimenting with, his engine. He should also subscribe for and read one or two of the several well-established Mechanical Journals, thus keeping well informed upon the progress being made in the mechanical world and all modern improvements in the way of locomotive appliances.

It is just as essential to an engineer hoping to succeed or attain prominence in his profession, to keep apace with the

times, by enlarging his knowledge with constant reading and careful study of all matters pertaining to his profession, as it is for successful merchants, bankers and capitalists to protect themselves against dangerous competition in their respective lines of business. An engineer possessed of such knowledge and conversant with all happenings of note, cannot help but secure the admiration and esteem of not only his superior officers, but outsiders as well, who stand high in social and commercial circles, which tends to give him a high rating as an intellectual railroad man, with an influence of raising him to a loftier position than that of a locomotive engineer.

CHAPTER V.

MASTER MECHANIC AND SUPERINTENDENT MOTIVE POWER.

The mechanical and motive power department of a railroad is one of the most important branches of the service,

and if the best interests of the stockholders are to be considered, it is essential that the master mechanic, or superintendent of motive power, as the case may be, at the head of this department, be possessed of a thorough knowledge of machinery, locomotives and rolling stock, connected with the faculty of imparting this knowledge to his assistants, foremen and subordinates generally.

He should be familiar with all rules and instructions issued by higher officials governing employes of the operating department, thus enabling him to act intelligently when defining the duties of engine men and others over whom he may have authority. He should know personally all engine men who have been in the service a reasonable length of time, also know what men are assigned to the different engines, keeping himself fully advised as to the ability of each engineer and fireman, and in a general way know what their habits and conduct are when off, as well as on, duty. He should consult

the train master, his foremen and others frequently, respecting the performance of engines on the road, thus being enabled to keep them in proper condition to render the most efficient service.

In making requisitions for fuel and other kinds of material strict economy should be practiced and this fact strongly impressed upon the minds of all employes. As a rule most employes of a railroad lean toward extravagance in the use of material supplied them, merely from the fact that supplies and tools are received for the asking, and in no other department of the service is this felt more than in the mechanical. Therefore the master mechanic cannot be too vigilant in this direction if he hopes to succeed by shrewd, economical management.

In the selection of assistants and foremen of the various shops no partiality should be shown, and only those selected who, by the superior knowledge displayed combined with their general de-

portment, recommend themselves for consideration. The same rule will apply in the promotion of engine men.

The different shops and round houses should be visited as often as practicable by him and notice taken as to whether or not all orders and instructions are being observed. To enforce obedience to all instructions, rules and regulations a line of discipline should be adopted and administered in a manner that will secure the best results in the interest of the company as well as retaining the confidence of all employes. This can be accomplished if the master mechanic be of intellect, broad enough, to mingle, when necessary, with employes in the lower walks of life without lowering the dignity pertaining to his official position. By patiently listening to employes when they wish to disclose their troubles, advising those who seek advice, dropping a pleasant word now and then, always taking a firm stand against any irregularities, he can, to an immeasurable degree, cement the

bonds of loyalty to the company, prevent dissension in the ranks and save his superintendent much annoyance and valuable time.

The master mechanic should be familiar with the rules and regulations issued by, and governing, the Master Car Builder's Association, and if his road be a member he should require employes in this line to familiarize themselves with the code of rules covering the condition of cars in the interchange of traffic with connecting lines, and in the building and repairing of all cars and engines he should see that the required standards are strictly adhered to. He should know the standard value of all engines and cars on his line, and also be familiar with the cost, quantity and kind of material used and the amount of labor required on each piece of locomotive or car machinery; thus being able to give definite information upon any work in his department. He should keep his superintendent or general manager fully advised

of any improvements being made, and when necessary, be able to estimate the cost of equipping the rolling stock of his road with any of the many different devices that are being patented and presented to railroads from time to time, that may appeal to their favorable consideration.

To fill the position of master mechanic with credit to himself and the road employing him, in addition to possessing the combined qualifications herein set forth, a man should have an extended knowledge of the world in general and be fully alive to the fact that, to keep apace with the spirit of the age and with other representatives of the mechanical world, it behooves him not only to be able to intelligently follow out the patterns and instructions laid down by others, but also to be capable of conceiving and advancing theories of his own that tend to improve the modern locomotive, always endeavoring to procure a greater speed and strength and a

higher degree of safety than that afforded by the railway equipment of the present time.

The motive power and equipment used on the twenty-three miles of railroad operated in the United States in 1830, were of little importance compared with our locomotives and present means of transportation in use on the network of railroads now extending through every state and territory in the Union, comprising more than double the mileage of any country in the world.

Considering this, the obstacles and prejudices encountered and overcome by mechanical engineers and inventors, since the incipency of railroad locomotion clearly demonstrate that, with the advantages of stronger and more durable material, together with the aid of electricity afforded us for use in the construction of machinery at present, fifty years hence the locomotive equipment and mode of railroading should be far in advance of what they are today, if, as previously

stated, aerial navigation does not interfere.

Thus it can be seen that the field for great achievements is not entirely covered, and Master Mechanics may ascend high the ladder of fame by applying the required energy to the opportunities offered them for experiment and display of their individual genius.

PART III.

MESSENGER—CHIEF DISPATCHER.

CHAPTER I.

MESSENGER BOY.

With but few exceptions a messenger boy is one whose parents are compelled to take him from school early in life, so that his earnings will help to defray the expenses of the family, and consequently he has but a part of a common school education.

On securing a position, his first thoughts should be centered upon the business entrusted to him, promptly delivering all messages, etc., and never loitering along the streets talking with others. He should also consider all matters concerning the business which he hears in and about the office, or otherwise, strictly private both on and off duty.

Although his clothing may not be the finest, he should appear neat and clean, and his bearing toward the public, as well as those with whom he is directly

associated, should be polite and respectful.

When not engaged in delivering messages, etc., his time while on duty should be spent in the office, that he may respond to the call when needed, and, while thus disengaged, he should improve his education in the study of school books, and also turn his attention toward learning the art of telegraphy. Those above him cannot fail to recognize his ambition and they will willingly assist him.

He secures an old "key" and "sounder" and gets some experienced hand to fix him up with a "short circuit," on which he learns the characters used, and, by application at "odd times," gets so he can "send" fairly well, and in time he will be able to catch the "office calls" on the main line. Gradually he becomes familiar with the characters so that he can "read" fairly well, then he has "clear sailing" and practice is all that is required.

In this way the months glide by and

he continues to properly perform his duties, keeping up his practice in telegraphy until he become a fairly good operator, and he is then given a trial, most likely a "night office" at some small station.

CHAPTER II.

TELEGRAPH OPERATOR.

On being installed as an operator the young man's first duty should be to make himself familiar with the rules of the operating department, especially as to the movement of trains by telegraph and also special instructions which concern him or the station at which he is employed. He should make it a point to follow such rules and instructions himself and make no attempt to shield others who violate them and should always endeavor to assist the dispatcher in every way he can.

He should hold himself in readiness to answer his "call," promptly report the arrival and departure of trains, watch the

wires and report quickly when they are in trouble, and the direction from his station, and keep careful watch of the location of trains so that he can give proper information to those who should know, without asking the dispatcher. He should be especially careful in the handling of "train orders," delivering them personally, and should always have a full set of signals in good order and convenient for immediate use.

Although in telegraphing, as in all other pursuits of life, one's ambition should be to become proficient in it, his highest aim should not be to become a fast "sender" that he may "rush that fellow," or a good "receiver" so "he cannot rush me," for if this is practiced he is constantly in trouble and annoys the dispatcher and delays business, but he should establish habits of caution, accuracy and diligence, taking a good average "gait" and keeping it. In this way more will be accomplished and the results

attained will be much more satisfactory to all concerned.

During all this time a fair proportion of his leisure hours should be spent in studying ordinary school books and reading the news of the day, and the balance should be judiciously employed in healthful recreations and moral pursuits, choosing only the best of companions. Many an otherwise bright young operator becoming discouraged and, seeking the companionship of those whom he thinks will not notice his deficiencies in the matter of education, (who as a rule are boys whose only ambition is to get through life with as little effort on their part as possible) is soon led to frequent saloons, gambling houses, etc. If an operator follows the latter course he cannot long hold the position that he has, much less expect promotion, while if he is a moral young man, keeps good company, is kind and courteous to the public, as well as his co-employees, attends strictly to business

and looks after the interests of the company, his superiors will recognize in him a valuable man and he will be advanced step by step (in each position endeavoring to give better satisfaction than in the previous one) until he is entrusted with a "trick" as dispatcher.

CHAPTER III.

TRAIN DISPATCHER.

On being promoted to the position of train dispatcher there will be a feeling of added responsibility, which, although it weighs heavily for awhile should tend only to increase the zeal and earnestness with which a man does his work. To properly fill the position of train dispatcher he should be a good operator, possessed of a fair general knowledge of the workings of the operating department of a railroad, an adept at figures, and should have a keen foresight, so he can quickly and correctly execute a number of moves ahead and provide for that which may not work just as anticipated.

He should also be possessed of a clear head and even temper *and should drink no intoxicating liquors.*

On going to work, his first duty should be to get an understanding of all orders in force and see that they are correct, then ascertain the location of trains on the "train sheet," and keep close watch that all which is done will insure safety as well as the prompt movement of trains.

He must constantly bear in mind that the success of a railroad depends to quite an extent upon the safety and dispatch with which the business tendered by its patrons is handled, and be governed by this in giving preference to trains, taking into consideration the kind and class.

He should endeavor to get the ideas of his superiors so fixed in his mind that when left to his own resources he may act properly and in accordance with their wishes. He should be governed by the instructions of those in authority and never encourage or conceal any violations of rules by others. He should not allow

a desire for popularity among those in the train or telegraph service to influence him in any way and should show no partiality.

There is a constant strain on the nerves of a train dispatcher, on which account his hours of duty are generally short, which gives him considerable leisure time; a portion of which should be spent in broadening his views of the world in general and his branch of the business in particular, so that he may be fitted to accept the position of chief train dispatcher when opportunity offers.

CHAPTER IV.

CHIEF TRAIN DISPATCHER.

To be fitted for the position of chief train dispatcher a man should be a proficient operator, quick of perception, possessed of good business tact and such a mind as will enable him to read human nature with such accuracy that he may properly discipline those under his juris-

diction, and yet obtain and hold, their loyal support.

He should know the respective ability of the dispatchers under him, giving personal attention to the manner in which they perform their duties and instructing them from time to time as to the movements of trains, recording of delays and accidents, etc.

He should see that perfect order and decorum are observed by dispatchers on duty, and all other employes of the office, and that only those persons whose duties require it have access to the dispatchers' office, in order that those employed therein may be able to give their undivided attention to the work before them.

He should always endeavor to keep a competent force of operators on the line, and from their work on the wires, or otherwise, be able to judge as to their ability and disposition. He should require prompt and proper transmission of all orders, messages, etc., and permit no

abusive or vulgar language to be indulged in over the wires.

He should know the location of "line repair men" at all times, and make every effort to perfect the mechanical working of the telegraph service.

His personal attention should be given to the answering of correspondence, the abuse of car service, the selection and placing of operators, never depending upon subordinates to relieve him of such duties except in case of sickness, etc. In cases where their chief displays the slightest tendency toward indifference in his manner of doing business, employes are quick to take advantage of it, and, failing to throw the necessary energy into their work, the result is not only detrimental to the best interests of the company, but injurious to the aspirations and ambitions of all employes in this department.

From practical experience as a dispatcher, or otherwise, he should have indelibly fixed upon his mind a profile of

the road in general, such as the lay of the track, the location of all stations and sidings, capacity of each, and all connections of his line with foreign roads.

The responsibility of opening the line when blockaded, and when necessary in such cases, of prompt action in securing transportation for important trains over foreign roads, devolves upon the chief dispatcher, in the absence of his superior officers; and, having previously studied their wishes, he should follow their ideas as far as practicable. He should also know the position of "tool" and "derrick cars," and "construction" and "wrecking" crews; thus enabling him when, through accident or other cause, his line becomes impassable to concentrate a sufficient force of men and tools at the point of trouble in such a short space of time as to remove the obstruction with the least possible delay.

He should have a thorough knowledge of the number and capacity of all locomotives and different kinds of cars owned

and in use by his own company, as well as the cars of other roads and private corporations that may be operating over, or in connection with, his line. He should watch closely the movement of foreign cars and foreign loading at home stations, special attention being given competitive shipping stations, and see that all orders for cars are promptly filled; loading foreign empties "home" when practicable, otherwise returning them by the shortest route.

He should keep himself well informed as to the future prospects for business and at what point and to what extent it will reach his line, carefully distributing engine and train crews, so that the power will be utilized to the best possible advantage, leaving no opening for the necessity of running crews in both directions with less than full "hauling-rates," over the same part of the line at the same time. This matter should be constantly borne in mind, as thousands of dollars annually can be saved to the company,

and much dissatisfaction among engine and train men avoided, if the power is economically and intelligently handled. He should also realize that the patronage of his road depends to quite an extent upon the promptness in the provision of cars and the dispatch and safety with which all traffic is moved.

He should be familiar with the make-up of passenger trains on his line and the location and condition of all extra equipment, keeping well informed on all happenings of note, especially those which would probably produce extra travel between points on the line, and see that proper facilities for transportation are provided.

In addition to keeping a close check on his own department, he should endeavor to secure a wider knowledge of the world and railroad work in general, since a fair proportion of the business of all branches is done through his office and in his sight or hearing.

If he displays the proper energy in

the management of his own department, and embraces the opportunities afforded him to broaden his views, he may reasonably expect promotion to a superior position when a vacancy occurs.

PART IV.
CLERK—AGENT.

CHAPTER I.

FREIGHT OFFICE MESSENGER BOY AND CLERK.

Clerical work in the different departments of a railroad, especially in the freight department, where the largest number of clerks are employed, presents an inviting field for a business career to the average boy who has received a fair common school education, as promotion will come naturally, provided the duties of each position are attended to conscientiously and in a prompt business-like manner.

The boy who has succeeded in securing a position as messenger in a freight office at any large junction or terminal station, when he reports for duty, will be handed over by the agent to the chief clerk, who will instruct him as to what his duties will be. He should bear in mind that the clerks in the office are men and should receive the respect that is

always due from a boy to one older than himself, and although under instructions from the chief clerk, if another clerk in the office should ask him to perform any service that does not interfere with the regular duties assigned to him, he should cheerfully and quickly perform such service. By pursuing this course he secures the friendship and good will of all the clerks in the office, and if ambitious and anxious to learn, they will only be too glad to give him "pointers" about their work, and even allow him to help them at times. This will give him an opportunity to learn the work upon the different desks in the office, which he should take advantage of, with a view of being promoted to a junior clerkship, after he has served his apprenticeship, so to speak, as messenger boy. He should also bear in mind that prompt obedience, polite answers, such as "Yes, sir" and "No, sir," and a neat and tidy appearance will greatly increase his chance for promotion.

In the course of time, when a vacancy occurs, or new clerks are added, due to increase of business, he will be given one of the minor desks in the office, generally that of expense bill clerk, or copyist on the bill desk. This copying work, on either of these desks, will give him a geographical knowledge of the country, which will become valuable later on, when occupying more important positions. He has now arrived at the age which is the most critical period in the life of every young man, and a great deal of his future success will depend upon, not only his application to business, but also his associations outside of the office after business hours. He should not seek his recreation and amusement in saloons and other disreputable places, as, if habits of frequenting them grow upon him, even though he does not become a slave to intemperance or a victim of other vices, his employer will sooner or later become aware of such practices, and they will figure

against him, so far as future promotion is concerned, if they do not lead to his dismissal. On the contrary, by cultivating the acquaintance and society of respectable young ladies and gentlemen, and joining them in social amusements that do not interfere with his business, his career will be uninterrupted.

As time passes he will be advanced from one desk to another, taking in various positions, such as car clerk, where he will become acquainted with the rolling-stock of the different roads; claim and tracer clerk, where he secures a knowledge of correspondence and methods of handling same; rate clerk, where he becomes conversant with the rates and classifications in use, and also the workings of the different traffic associations, especially those of which his road is a member, etc., etc., continuing to give good service in each, until he is finally promoted to one of the two highest positions in the office, either cashier or chief clerk.

CHAPTER II.

CASHIER.

The position of cashier in a freight office is one that requires a person of undoubted integrity who has a thorough knowledge of the system of accounts used by the company. All railroad companies require a good and sufficient bond from employes handling a large amount of the company's money, and most railroads require that this bond be furnished by a guarantee company. The young man will, therefore have to fill out the blank application for bond of the guarantee company that does business with the road, answering numerous questions that are considered necessary, being careful to make his replies correct in every particular, as the slightest irregularity is sometimes thought by the guarantee company to be sufficient cause to refuse to issue the bond. A refusal of this kind would effectually bar further advancement, consequently too much care cannot be

used to guard against it. After his application has been favorably considered and bond given, his habits and general conduct should be irreproachable, giving no reason whatever to the guarantor for withdrawal from his bond.

His duties will comprise the handling of all moneys received, the remittance of same to the treasurer, and the keeping of the accounts of the station. He should never allow himself to become careless in the handling of money, as by such carelessness little errors will occur that lead to greater ones until he finds himself responsible for a large loss, which, even if he makes good, will cause him to be looked upon with more or less suspicion by the agent and the officials of the company.

By handling his work as if he expected the traveling auditor every day to check the station, he will find that it will reduce the clerical work of his own position and make a record for himself and the station that will be appreciated by

the agent and the officials of the auditing and financial department; all of which will have an influence of placing him in a superior position when an opportunity presents itself.

CHAPTER III.

CHIEF CLERK.

The position of chief clerk is the most important one at a large station next to that of agent. A man should bring to this position not only a thorough knowledge of station business but also some executive ability and a faculty of systematizing the office work so as to produce the best results with the least amount of labor, as he arranges the work of all the clerks and instructs them in their various duties. He should be familiar with all reports that are made for the different officials of the company, daily, weekly, etc., and should see that the clerks who make these reports send them in promptly at the times specified. He should see that the work of the office

is evenly distributed among the clerks and arrange when any one of them has an unusual amount of work upon his desk to give him the assistance of some other clerk, using good judgment and tact in a matter of this kind so that no one will be done an injustice. He should endeavor to obtain the respect of the clerks in the office under his charge, and he can only do this by being impartial, making favorites of none.

He should enforce all rules of the office in a strict, business manner, and see that the office hours are strictly adhered to by all of the clerks, and in order to do this he should make it a point to reach the office himself, both in the morning and at the noon hour, ten or fifteen minutes before the regular time.

He should in fact fulfill the duties of his position exactly as he would like to have them fulfilled if he were agent. By so doing he will fit himself for the position of agent and can look forward with

confidence to his promotion as such when a vacancy occurs.

CHAPTER IV.

FREIGHT AGENT.

The position of freight agent at a large junction or terminal station is one of great importance, and the man selected for this position is usually discussed from every point of view, by officials in the operating, traffic and accounting departments, before he is appointed. He should have a thorough knowledge of freight traffic, financial and accounting matters, and if the duties of the freight agent include the charge of terminals, he should also have a good knowledge of the operating department, so far as the making up and handling of trains are concerned, etc.

In addition to being conversant in such matters in order to be successful, he should be a man of considerable executive ability and have the faculty of enforc-

ing good discipline among employes under his charge.

His success will also depend to a great extent on the judgment he exercises in selecting his lieutenants, such as chief clerk, cashier, yard master and warehouse foreman. If he places good men in these positions, and then systematizes their work so that each one of them will understand his whole duty and co-operate with the others, there is no question but what he will have a model station, he of course exercising a watchful supervision over all.

He should be familiar with all property and lands owned by the company within his jurisdiction; should see that its buildings are not misused and should endeavor to have the team tracks and warehouse, and the driveways in and around same, kept in as good, if not better condition than those of competing lines, so as to make his station more attractive in the eyes of merchants and business men generally. In making

suggestions, however, to his superintendent in regard to any improvement that in his judgment should be made in the warehouse, yards or buildings, he should show good reasons why such improvements appear to him to be necessary.

He should conduct the service of the station according to civil service rules, having no favorites among the employes in any department, but giving them all to understand that length of service with the company, knowledge of the business and good work, are the only roads to promotion. He should consider carefully every important matter that is brought to his attention, taking sufficient time to look at it from every point of view before making a decision, and should never undertake to settle any matter for the company that might involve it to any great extent without instructions from his superior officers, except in cases that require immediate action, and in such cases he should report the facts to them promptly, giving full explanation as to

his handling of the matter, and reasons for action taken by him.

He should pay particular attention to the expenses of the station, comparing the pay roll of each month with that of the previous month and with the same month in the previous year, and if there is any increase he should see whether or not the increased business as shown by the tonnage justifies the increase in expenses. He should endeavor to extend the business of the company in every direction, and in order to do this should cultivate the acquaintance of the shippers and merchants of his city, endeavoring to obtain their good will and patronage in every possible way consistent with the dignity of a gentleman. He should not stoop to untruths or deceit of any kind in endeavoring to get business, as such practices, while they may gain temporary advantages, will undoubtedly re-act against him and the company he represents. He should never make any definite promises unless he knows positively

that they can be fulfilled, as every broken promise upon his part will more than counteract a half dozen previous favors that he may have been able to extend to the shipper.

An agent possessing the qualifications herein set forth, is a valuable man for any railroad and can reasonably expect that promotion will come to him, in the course of time, from either the operating or traffic department, in the shape of a superintendency of a division, or assistant general freight agency of the road.

PART V.

GENERAL, MANAGER AND PRESIDENT.

CHAPTER I.

GENERAL, MANAGER AND PRESIDENT.

A general manager should be possessed of executive ability in the highest degree and should have sound business ideas on matters of trade and finance generally. He should also have personal magnetism sufficient to attract the passive, if not the active, friendship of all with whom he comes in contact in his official capacity, be they employes, patrons of the road, newspaper men, politicians or statesmen.

While it is not absolutely necessary for him to be familiar with the practical workings of a railroad in all its departments, that is, to have risen from the ranks, such practical knowledge in connection with the other qualifications mentioned will enable the fortunate possessor to become pre-eminent as a manager.

He should know the value of the road

as a whole; how much land the company owns (and its value) at the different points along the line, the value of the equipment, etc., and the cost of maintaining same. He should also know the earning capacity of the road and whether or not it is securing its proportion of the business as compared with competitive lines, and should thoroughly understand its business relations with connecting lines, the class of freight received from them and where the bulk of it originates and its destination.

He should be acquainted with not only his lieutenants, whom he appoints himself, but also their assistants and others who are in charge of employes in any department and as many more of the employes as is reasonable to expect of any one man. He should also be acquainted with all large shippers, and other prominent people who have business relations with the road and should be conversant with the markets, the value of crops, etc.

When asked by the board of directors

which, as a rule, is composed of men who are not acquainted with the practical operation of a railroad) to explain why the earnings are falling off and it is necessary to cut or split the dividends, he should be gifted with sufficient tact combined with a knowledge of the situation to explain to them, in a clear manner, the condition of affairs, when it is not due to new extensions having been built, a failure of the crops, a general stagnation of the mercantile business throughout the country, or a party on Wall street "watering" or "cornering" the stocks.

Too often are employes who are proud to be recognized as being in the employ of a certain railroad company, placed in an embarrassing position on account of their general manager being unable to lay the true condition of affairs before the directors in such a manner that they may fully comprehend the situation, thus causing innocent men to be censured by the stock holders, and in turn by the people, indirectly injuring their future to some

extent if an ordinary employe, and to quite an extent if at the head of any department.

He should be well informed in regard to the laws of the state or states traversed by his line and should be able to lay all matters clearly and concisely before the legal department. He should have all the support of practical politicians that he can obtain, and should be as well able to combine their support and influence in short order when necessary to protect the interests of his road, as any other man in a similar position, that is, he should be acquainted with all the different bills which in any way affect his company, as they are introduced at state headquarters, and should lose no time in rallying his political forces to use their influence for or against them.

The general manager and president should each be obliged to invest at least ten thousand dollars in stock or bonds of the company on being appointed, in order that they may take a personal pecu-

niary interest in the welfare of the property, in addition to an active interest. If they have not sufficient means to advance the amount at the time of their appointment, a binding agreement, providing that they then pay what they can, and that thenceforward a certain percentage of their salaries be invested until the stipulated sum has been reached, should be drawn up between themselves and the company.

General managers and presidents are "human" and are naturally anxious to have their jurisdiction extended over as much territory as they can, but being human there is therefore a limit to their ability, and the limit to a general manager's ability is reached at 3,000 miles and that of a president at 6,000.

In cases where the mileage exceeds the above figures, their positions are partially filled by subordinates, who neglect their own duties for the opportunities afforded them to "reach out" and the

result is detrimental to the interest of the owners of the road.

They should be careful in making suggestions or recommendations to directors or stock-holders in regard to purchasing or disposing of realty, increasing the rolling stock, building new extensions, purchasing or building new terminal facilities, etc., on any "fancy" ideas or suggestions of others.

They should be watchful to see that officials under them do not, directly or indirectly, deal in options concerning the road with which they are connected. It is injurious in more ways than one.

While it remains a fact that railroad-ing has not attained its zenith as a progressive industry, it has, however reached the point where good judgment and careful management necessarily succeeds the loose methods and recklessness that have characterized the management of a great many railway enterprises in the past. This is attributable to various reasons that in turn has caused an almost univer-

sal depreciation in the value of railway securities, the principal reasons being the rapid building of railroads, producing greater competition, and certain acts of legislation by an enlightened people, which have placed some restrictions upon the earnings of railroads, while at the same time the demands of labor have steadily increased. The result is that railroad corporations are face to face with the prospect of a future of increasing operating expenses, with no proportionate increase in dividend earning power. Thus it appears that even the general manager or president, who by years of hard work and self-denial has built up a good and substantial reputation as a manager and financier, will find himself compelled to deviate from the old line and introduce reformed methods in the management of the property he represents.

With these odds against them, though they may be equally as well gifted, few men can take the chances of acquiring

wealth and prominence by any sudden strokes in railroad financering like those that have distinguished some of our most successful railway magnates of the present day.

